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# PERFORMANCE OF BASIC INFANTRY TASKS

Paul W. Mayberry

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CRM 89-45 / July 1989

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Paul W. Mayberry

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#### ABSTRACT

Objective empirical data reflecting a Marine's ability to perform basic infantry tasks are rare. Data from the Marine Corps Job Performance Measurement Project are used to describe the performance levels of infantrymen. Performance strengths and weaknesses are identified, and measures reflecting how recently Marines have performed infantry tasks are noted. Results of the interaction of the performance outcomes and the recency of task performance have potential implications for training in infantry tasks.

## EXECUTIVE SUMMARY

Objective empirical data that reflect a Marine's ability to perform basic infantry tasks are rare. Such information would be useful in establishing the personnel readiness of infantrymen and would identify areas that might benefit from additional training or practice. The Marine Corps Job Performance Measurement (JPM) Project is an extensive effort to measure the performance levels of infantrymen in the validation of the aptitude test used to select military recruits. This research memorandum focuses on the performance data collected for that project.

Marines were tested in a "hands-on" format for 75 basic infantry tasks. The tasks were selected from the Individual Training Standards (ITSs), which define the job requirements for infantrymen. The hands-on test was an objective, performance-based assessment of an infantryman's ability to successfully accomplish his job requirements.

### TASK PERFORMANCE

Each hands-on task required the performance of a series of steps, which were scored either "go" or "no-go." Scores were computed for each task as the percentage of steps correctly performed. Marines demonstrated a high degree of proficiency on tasks that used the night vision device and the basic squad automatic weapon (SAW), and in the security and intelligence duty areas. Tests in the communications, tactical measures, and nuclear, biological, chemical (NBC) defense duty areas had a wider range of scores. For example, the communications duty area included tasks that were readily performed (assemble and operate PRC-77 radio) and also contained a few tasks on which Marines were least proficient (construct field expedient antenna). The tasks of the mines duty area were among the most difficult for Marines to perform. The average Marine could perform about 25 percent of the required steps for installing and recovering the Claymore mine with tripwires. Marines had problems on several land navigation tasks: determining azimuths at night, location by resection, and location by map-terrain association. The first aid tasks that posed considerable difficulty were chest pressure arm lift and performing CPR.

Ratings reflecting how recently a Marine had performed a task were also collected. Marines rarely perform the installation or recovery of Claymore mines. Nor are the tasks composing the grenade launcher duty area performed on a frequent basis--emplace stakes, confirm zero, and perform maintenance. None of the communication tasks dealing with the TA-312 telephone set are regularly performed, while tasks associated with the PRC-77 radio are performed periodically. Many first aid tasks--sucking chest wound, abdominal wound, and amputated limb--appear to be taught by instruction only, with no performance opportunities. Although land navigation tasks were among the more difficult to perform,



they were among the tasks most recently performed. The SAW tasks of fieldstripping and assembling the weapon were also frequently performed by Marines.

#### RELATIONSHIP BETWEEN TASK PERFORMANCE AND TASK RECENCY

Some tasks are more amenable to practice effects than others. Most tasks had a proportional return on the amount of practice invested-- little practice time results in a low level of hands-on performance, and vice versa. However, a few tasks, primarily land navigation tasks, for which significant time was invested in recent performance, had hands-on performance results that were relatively low and not consistent with the degree of recent practice. While such high levels of practice may be required to sustain this relatively low level of hands-on performance, review of the training procedures and practice sessions may be beneficial.

The perishability of hands-on task performance was also examined based on the ratings of performance recency. Tasks of the land navigation, SAW, and LAW duty areas were identified as perishable if not practiced on a regular basis. These "use it or lose it" tasks should be practiced just before deployment to ensure maximum potential performance. Conversely, tasks composing the security and intelligence and tactical measures duty areas were relatively stable. There may also be certain stable tasks that should be continually reinforced, despite their relative stability, because they are central to the successful accomplishment of a mission.

#### LOCATION AND PAY GRADE DIFFERENCES

Location differences in hands-on performance and recency of task performance are to be expected, given that the divisions have slightly different operational goals and therefore somewhat different training emphases. For many tasks, differences in performance by location were explained by location differences in performance recency. There were 17 such tasks (27 additional tasks had no performance or recency differences). For those tasks in which performance differences were not explained as a function of recency differences, implications can possibly be drawn for the effectiveness of training and practicing procedures. Possible training inefficiencies were identified for those tasks in which one base was higher with respect to recency but equivalent or lower than the other base with respect to performance. Camp Pendleton may benefit from reviewing its procedures associated with several tactical measures tasks, and Camp Lejeune might make improvements by examining its procedures for a few first aid and NBC tasks.

The Marine Corps has greater performance expectations for Marines in higher grades. Also, job requirements are cumulative, so that those in higher pay grades are held accountable for all previously assigned responsibilities. The hands-on performance data supported these expectations in that E4s and E5s typically outperformed their sub-

ordinates significantly. Although in some cases lower pay grades did outperform the higher pay grades, the differences between pay grades were not significant. With respect to pay grade differences for performance recency, it was evident that E4s and E5s have had significantly fewer opportunities to work with the SAW than those in lower pay grades. The hands-on test results suggest that the Marine Corps may need to supplement the training and practice of E4s and E5s to ensure their proficiency on this weapon.

#### SUMMARY OF FINDINGS

Based on the JPM infantry hands-on performance data:

- Marines were proficient in performing most tasks of the SAW, night vision device, and security and intelligence duty areas. Marines had difficulty performing most of the land navigation and mines tasks.
- High percentages of Marines in all pay grades reported never having performed many tasks of the grenade launcher and mines duty areas.
- Tasks of the land navigation, LAW, and SAW duty areas tended to be perishable if not performed on a regular basis. Such information could have important implications for the scheduling of training events in a unit's deployment workup.
- A few tasks were identified for which Camps Lejeune and Pendleton differed with respect to task performance and recency of task performance. Potential implications for evaluation of task training were noted.
- Higher pay grades consistently performed better than lower pay grades. However, E4s and E5s did not perform better in a few SAW tasks. For these SAW tasks, E4s and E5s reported having fewer opportunities to perform.
- The existence of tasks for which infantrymen are doctrinally responsible, but which they rarely have the opportunity to perform, necessitates review of Marine Corps performance requirements.
- Application of the results of this research memorandum to training or practice modifications must reflect the value of each task to the overall accomplishment of a unit's mission. Such values of what is important or critical will vary as a function of mission requirements.

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## INTRODUCTION

The Marine Corps Job Performance Measurement (JPM) Project is an extensive research effort to validate the Armed Services Vocational Aptitude Battery (ASVAB) against objective measures of job performance. The first phase of the project has concentrated on the infantry occupational field in which more than 1,900 first-term Marines in four military occupational specialties (MOSs) were administered hands-on job performance tests. The project results reported to date have tended to focus on the relationship between aptitude and performance, not on the ability of Marines to perform their job requirements. This research memorandum will present a more detailed examination of the performance of Marines, particularly of their ability to perform basic infantry tasks.

The hands-on job performance test consisted of 75 basic infantry tasks. To provide a background for interpreting the performance results for these tasks, the test development and administration process is briefly described. Each task was examined with respect to its difficulty, and content areas in which Marines had particular trouble are noted. Ratings of the recency of task performance were also collected. These recency ratings are informative in their own right in that they reflect the extent to which Marines have actually performed the tasks on which they were tested. Performance differences for the two testing locations were also investigated--were Marines' task proficiency levels comparable across locations? The recency ratings were used to explain some of the locations' differences as well as to identify areas that might benefit from review of the training and practice procedures. Finally, the Marine Corps has identified certain basic infantry tasks that are the responsibility of corporals and sergeants. Performance levels on these tasks were compared across pay grades.

## TEST DEVELOPMENT AND ADMINISTRATION

The initial requirement in developing a hands-on job performance test is to completely specify the tasks that constitute a job. The Individual Training Standards (ITSs) developed by the Training Department, Headquarters, Marine Corps, were the primary source of detailed information that defined the job tasks of the infantry occupational field. The ITS tasks are organized into relatively homogeneous duty areas. The duty areas of the basic infantry MOS (0300) and example tasks are as shown in table 1.

Table 1. Duty areas and example tasks for basic infantry

Duty area	Example duty area tasks
Tactical measures	Call for/adjust indirect fire
Security and intelligence	Process prisoners and equipment
M203 grenade launcher	Prepare for firing
Hand grenades	Engage target with dummy grenades
Mines	Install Claymore mine
Communications	Assemble and operate PRC-77 radio
Land navigation	Determine location by resection
First aid	Treat sucking chest wound
Night vision device	Operations inspection
Squad automatic weapon	Fieldstrip and assemble
Light antitank weapon	Restore expanded LAW
Nuclear, biological, chemical defense	Don individual protective clothing

Given limited resources, personnel, and time, not all tasks defined by the ITSs could be tested. Therefore, it was necessary to develop an objective procedure for sampling tasks to be tested. The sampling procedure incorporated the underlying behaviors associated with the performance of each task to identify behavioral similarities across tasks. Weighting each by its number of behavioral elements, tasks were randomly selected within each duty area. The intent of this process was to test as many behaviors as possible within a duty area while not being overly redundant in the testing of any specific behaviors. Marine Corps job experts were extensively involved throughout the entire task specification and sampling process to ensure that the selected content was representative of the basic infantry specialty as a whole and was consistent with what infantrymen are required to do on their jobs.

The sampled tasks were subjected to extensive task analyses to identify discrete and observable steps associated with the performance of each. These analyses were then transformed into "hands-on" tests of task performance so that each step could be objectively scored in a "go/no-go" format. Extensive tryouts of these hands-on measures were conducted with job incumbents to refine the test administration and scoring procedures as well as to ensure that the testing materials maintained their high fidelity to actual job performance. A sample hands-on test for a few selected tasks is presented in appendix A.<sup>1</sup>

The most critical component of hands-on testing is the test administrator. Unlike paper-and-pencil tests in which reliable and objective scoring keys are easily applied, hands-on testing involves a judgment of whether or not an individual performed a particular step. To minimize the subjectivity involved in such judgments, the test administrators were trained for two weeks in standardized test administration

1. A more complete description of the test development process is documented in CNA Research Contribution 570, *Developing a Competency Scale for Hands-On Measures of Job Proficiency*, by Paul W. Mayberry, Unclassified, Dec 1987.

procedures. Retired Marine Corps staff noncommissioned officers (SNCOs) were hired to serve as test administrators because of their experience in the infantry field, knowledge of the Marine Corps, and ability to work well with young Marines. To ensure comparability of hands-on scoring standards across testing locations, detailed training materials were prepared and the same training team conducted the instructional sessions at both locations. Extensive quality control procedures were implemented to ensure that the test administrators maintained the scoring standards to which they were originally trained. These control measures included multiple-administrator scoring of examinee performance to determine administrator agreement and consistency, daily entry of performance data to check for administrator leniency or drift, and administrator rotation across testing stations to minimize systematic error.

Four first-term infantry specialties were tested: rifleman (0311), machinegunner (0331), mortarman (0341), and assaultman (0351). Each Marine was tested for two days. One day was devoted to hands-on testing, and the other day was reserved primarily for written tests. The hands-on tests were organized into testing stations, eight indoor and seven outdoor. Each indoor station required approximately 30 minutes to complete, and the outdoor stations lasted about 15 minutes. Testing stations were composed of tasks that could be completed within the allotted time. Testing stations were also configured to minimize equipment requirements; that is, duty areas tended to be contained within a testing station if sufficient time was available to complete all tasks.

#### **TASK PERFORMANCE**

Each hands-on task required the performance of a series of steps that were scored either go or no-go. While some tasks had as few as 2 steps and others as many as 37, most tasks contained approximately 10 steps. Task scores were computed as the percentage of steps correctly performed; thus task scores ranged from 0 to 100 percent. The Marines did not prepare for this extensive hands-on testing, as is typically the case for other Marine Corps testing, such as the annual assessment of the Essential Subjects Tasks. Therefore, performance on the 75 tasks spanned almost the full range of possible scores. Table 2 lists these 75 basic infantry tasks and the labels that will be used to identify each task throughout this research memorandum.

#### **Level of Task Performance Proficiency**

Tasks were ordered based on the Marines' ability to correctly perform the required steps of each task. To facilitate interpretation of the performance differences between the 75 hands-on tasks, the tasks were divided into five groups of 15 tasks each. These groupings, called quintiles, were arranged according to Marines' level of task proficiency. The first quintile was composed of the 15 tasks on which Marines were least proficient, and the fifth quintile contained the 15 tasks of greatest proficiency. Table 3 reports these quintiles with the tasks for each quintile cumulated for the 12 basic infantry duty areas. More detailed information concerning the relative differences of Marines to perform each specific task is provided in appendix B and is described below.

Table 2. Definition of basic infantry tasks that were tested

Task label	Task Definition
CR01	Operationally inspect PRC-77 radio
CR02	Visually inspect PRC-77 radio
CR03	Operate PRC-77 radio
CR04	Assemble PRC-77 radio
CR05	Take immediate action on PRC-77 radio
CR12	Construct field expedient antenna
CT07	Install TA-312 telephone set
CT08	Repair cut wire
CT09	Operate TA-312 telephone set
CT10	Check parts of TA-312 telephone set
FA01	Administer mouth-to-mouth resuscitation
FA02	Perform CPR
FA03	Treat for shock
FA04	Perform fireman's carry
FA05	Administer first aid for abdominal wound
FA07	Treat amputated limb
FA08	Perform chest pressure - arm lift
FA09	Put on battle dressing
FA10	Treat sucking chest wound
GL01	Operationally inspect grenade launcher
GL02	Prepare launcher for firing
GL04	Confirm zero for grenade launcher
GL05	Maintain grenade launcher
GL06	Emlace stakes for grenade launcher
HG01	Engage targets with hand grenade
LA01	Prepare LAW to fire
LA02	Take immediate action on LAW
LA03	Restore expanded LAW
LN01	Set azimuth during night
LN02	Pace distance
LN02	Determine own location by map-terrain association
LN04	Determine azimuth from one point to another
LN05	Convert azimuth--magnetic and grid
LN06	Determine grid coordinates
LN07	Determine location by resection
LN08	Determine location by intersection
LN09	Follow azimuth
LN11	Measure distance on map
MI01	Install Claymore mine with electronic device
MI02	Recover Claymore mine with electronic device
MI03	Install Claymore mine with tripwire



Table 2. (Continued)

Task label	Task Definition
MI04	Recover Claymore mine with tripwire
NB01	Give appropriate visual NBC alarm
NB02	Put on and wear protective clothing
NB03	Drink while masked
NB04	Treat nerve gas casualty
NB05	Administer first aid for blistering agent
NB06	Inspect and maintain M17 mask
NB07	Identify NATO NBC markers
NB08	React to aerial spray
NB09	Remove mask
NB10	Treat choking agent casualty
NB13	Prepare NBC-1 report
NV01	Visually inspect night vision device
NV02	Operationally inspect night vision device
NV03	Clean components of night vision device
NV04	Observe using night vision device
NV05	Collect and report information
SI01	Observe and collect information
SI02	Prepare SALUTE report
SI03	Perform search and safeguard procedures
SI04	Inspect and tag prisoners and equipment
SI05	Pass friendly personnel through lines
SL01	Visually inspect SAW
SL02	Operationally inspect SAW
SL03	Fieldstrip and maintain SAW
SL04	Assemble SAW
TL01	Move individually
TL03	Perform one-man carries
TL04	Estimate range
TL05	Camouflage self and equipment
TM01	Select and establish helicopter landing zone
TM08	Direct helicopter landing and takeoff
TM09	Control unit movement when not in contact
TM14	Call for and adjust indirect fire

Table 3. Frequency of task performance within quintiles for each duty area

Level of task proficiency	Quintile	Range of scores for quintile	Duty area												
			CM	FA	GL	HG	LA	LN	MI	NB	NV	SL	SI	TM	
Least proficient	1st	12 - 41	2	1	2	1	1	0	1	3	2	1	0	1	
	2nd	42 - 51	1	4	2	1	0	2	1	2	1	0	1	0	
	3rd	52 - 58	2	1	0	0	1	3	1	3	1	0	1	2	
	4th	59 - 67	2	3	1	0	0	1	0	3	1	1	3	0	
	5th	68 - 99	3	0	1	0	1	1	0	2	2	2	0	3	
Number of tasks			10	9	5	1	3	10	4	11	5	4	5	8	
Infantry duty areas:															
CM	Communications														
FA	First aid														
GL	Grenade launcher														
HG	Hand grenade														
LA	Light antitank weapon (LAW)														
LN	Land navigation														
MI	Mines														
NB	Nuclear, biological, chemical defense														
NV	Night vision device														
SL	Squad automatic weapon (SAW)														
SI	Security and intelligence														
TM	Tactical measures														

The tasks related to the mines duty area were among the most difficult for Marines to perform correctly. The installation and recovery of the Claymore mine with a tripwire was extremely difficult to perform--the average Marine could perform about 25 percent of the required steps. It was also difficult for Marines to engage targets with hand grenades so that the grenades detonated within the prescribed distance of the target. The majority of the tasks composing the land navigation and first aid duty areas also tended to be difficult to perform. Marines had difficulties in determining azimuths at night, location by resection, and location by map-terrain association. For all of these land navigation tasks, less than 40 percent of the steps were correctly performed. The first aid tasks that posed considerable difficulty included chest pressure arm lift and performing CPR. About half of the steps for treating an amputated limb, an abdominal wound, and shock could be correctly performed. Marines did well on performing mouth-to-mouth resuscitation--on average about 63 percent of the steps were correctly performed.

Marines demonstrated a high degree of proficiency on tasks for the night vision device, basic squad automatic weapon (SAW), and the security and intelligence duty areas. The tasks for the night vision device included operation and visual inspections, cleaning components, and observing, collecting, and reporting information. While Marines were capable of fieldstripping and assembling a SAW, they had difficulties in performing an operation inspection and function check of the weapon. Marines also scored better than 60 percent in their ability to perform certain security and intelligence tasks: prepare a SALUTE report, perform search and safeguard procedures, and inspect and tag prisoners.

The communications, tactical measures, first aid, and nuclear, biological, chemical defense (NBC) duty areas had a wide range of scores. The communications duty area included tasks that were readily performed--assemble and operate PRC-77 radio (84 percent correct) and check parts of TA-312 telephone set (95 percent correct). This duty area also contained a few of the most difficult tasks of the hands-on test--construct field expedient antenna (12 percent correct) and repair cut wire (19 percent correct). The NBC duty area also illustrates such a contrast in task performance, ranging from easy tasks of giving appropriate NBC alarm (90 percent correct) and drinking while masked (72 percent correct) to the more difficult tasks of identifying NATO markers (22 percent correct) and reacting to an aerial spray (42 percent correct).

#### **Recency of Task Performance**

The extent to which a Marine has had the opportunity to perform a task in a training environment or on an exercise may affect his ability to perform that task in a testing situation. Ratings reflecting the

recency of task performance were collected for all examinees so that past experience could be considered in the interpretation of individual performance scores.

Prior to the performance of each task, the examinee was asked the last time that he performed the task: less than 1 week, less than 1 month, less than 6 months, greater than 6 months, or never (have received instruction only). Such information is useful in its own right because it provides specific verification of performance opportunities and possibly identifies areas for future training emphasis. While these ratings are all self-report, they are thought to reflect the actual performance opportunities experienced by individual Marines. As was done for the task performance scores, the mean of these ratings across examinees was used to divide the tasks into quintiles (see table 4). Appendix B provides the detailed descriptive information about each task.

Marines reported that they have little opportunity to perform the installation or recovery of Claymore mines, be it with tripwires or an electronic device. Nor are the tasks composing the grenade launcher duty area performed on a frequent basis--emplace stakes for grenade launcher, confirm zero, and perform maintenance. All communication tasks dealing with the TA-312 telephone set are not regularly performed by the average Marine, while tasks associated with assembling and operating the PRC-77 radio are performed periodically. Many first aid tasks--pressure chest arm lift, sucking chest wound, abdominal wound, and amputated limb--appear to be taught by instruction only with no performance opportunities. The hands-on testing simulated these injuries, using moulage wounds to which the first aid procedures were to be applied.

Although land navigation tasks were among the more difficult to perform, they are among the tasks most recently performed by Marines. These recently performed tasks included determining grid coordinates, determining and following azimuths, and measuring distances on maps. The SAW tasks of fieldstripping and assembling the weapon were also frequently performed by Marines.

The tasks composing the tactical measures duty area included extremes with respect to recency of performance. Many Marines have had limited opportunities to perform many squad-level tactical measures, such as directing helicopter landings and takeoffs, selecting and securing a helicopter landing zone, or calling for and adjusting indirect fire. However, some tactical measures tasks were selected from the Essential Subjects Tasks, which are tested annually--camouflage self and equipment, move individually, and estimate range--and accordingly these tasks had high marks for recency of performance.

Table 4. Frequency of recency of task performance ratings within quintiles for each duty area

Task recency	Quintile	Range of scores for quintile	Duty area											
			CM	FA	GL	HG	LA	LN	MI	NB	NV	SL	SI	TM
Not recent	1st	1.15 - 1.71	3	1	2	0	0	0	3	2	0	0	1	3
	2nd	1.72 - 1.96	2	5	1	0	2	0	1	2	2	0	0	0
	3rd	1.97 - 2.19	1	1	1	0	0	2	0	2	3	1	3	1
	4th	2.20 - 2.53	1	1	1	1	1	3	0	2	0	3	1	1
	5th	2.54 - 3.62	3	1	0	0	0	5	0	3	0	0	0	3
Recent														
Number of tasks			10	9	5	1	3	10	4	11	5	4	5	8
Infantry duty areas:														
CM	Communications													
FA	First aid													
GL	Grenade launcher													
HG	Hand grenade													
LA	Light antitank weapon (LAW)													
LN	Land navigation													
MI	Mines													
NB	Nuclear, biological, chemical defense													
NV	Night vision device													
SL	Squad automatic weapon (SAW)													
SI	Security and intelligence													
TM	Tactical measures													

## Relationship Between Task Performance and Recency of Task Performance

Given the number and diversity of basic infantry tasks included in the hands-on test, it is not unreasonable to expect that performance on certain tasks could be deficient simply due to infrequent performance of those tasks or that task performance could be high as a result of recent experiences with that task. Also, there may be some tasks for which performance is relatively unaffected despite the recency of one's performance.

This section will synthesize the previous discussions on task difficulties and recency of task performance. In examining the relationship between hands-on task performance and recency of task performance, the current performance emphasis on certain tasks will be described and the relative payoff of such emphasis with respect to the resulting level of hands-on performance will be noted. A second concern of this section will address the "responsiveness" of hands-on task performance to the recency of performing each task. In this manner, the perishability of task performance can be established, so that training and/or exercise plans can be developed to maximize the potential performance output relative to the amount of training time available. Of course, such decisions regarding what should be practiced on a regular basis must also take into consideration the criticality of the tasks and the potential negative consequences of substandard performance. Such issues are beyond the scope of this research memorandum.

### *Current Task Performance Emphasis and Relative Hands-On Performance Payoff*

The information concerning task performance noted in table 3 is combined with the information regarding task recency presented in table 4. This synthesis, given in figure 1, provides insights into the current Marine Corps emphasis or level of importance assigned to the regular performance of certain tasks. In addition, the level of hands-on performance resulting from such emphasis on performance of particular tasks can also be examined.

Figure 1 can be divided into three distinct areas that reflect different relationships between hands-on performance and task recency:

- The diagonal of the figure denotes tasks for which a given level of performance recency results in a proportional level of hands-on performance. Those tasks that have been recently performed result in high hands-on performance levels, and conversely, those tasks that are rarely performed have correspondingly low hands-on performance levels.

- The upper left triangle reflects tasks for which hands-on performance is high despite only limited amounts of performance practice.
- The lower right triangle includes tasks for which hands-on performance levels are relatively low despite their recent performance.

The lower portion of the diagonal of figure 1 includes tasks from the mines, grenade launcher, and first aid duty areas. Marines have had limited opportunities to perform the tasks of these duty areas, and accordingly the hands-on performance scores are also low. All tasks of the mines duty area are infrequently performed, and the performance on these hands-on tasks reflects such limited performance. Two of the higher order tactical measures tasks--direct helicopter landing and takeoff (TM08) and call for and adjust indirect fire (TM14)--are rarely performed by the average Marine, and the hands-on performance scores are indicative of this lack of practice. The middle portion of the diagonal--tasks that are moderately practiced and have median hands-on performance scores--contains a variety of duty areas, most notably tasks of the security and intelligence duty area. The upper portion of the diagonal represents tasks that are regularly performed and have high performance scores. Marines have had frequent opportunities to perform tasks associated with the PRC-77 radio, and their hands-on performance scores are consistent with such practice. A similar relationship is noted for tasks of the basic SAW duty area.

The upper left triangle of figure 1 includes tasks that are rarely practiced but that the average Marine performed to a high level of hands-on proficiency. For example, although Marines infrequently prepare the LAW to fire (LA01), they are quite able to perform this task in a hands-on setting. Most of the tasks in this triangle are rather basic and therefore would not be overly affected by practice; for example, check parts of TA-312 telephone (CT10), visually inspect night vision device (NV01), take immediate action on PRC-77 radio (CR05), prepare NBC report (NB13), inspect and tag prisoners and equipment (SI04).

The lower right triangle of figure 1 is composed of many land navigation tasks. Determining one's location by map-terrain association (LN03) is a task that typifies this triangle of tasks. The average Marine reports that he has recently performed this task; however, his low level of hands-on performance for the task is not consistent with his reported level of practice.

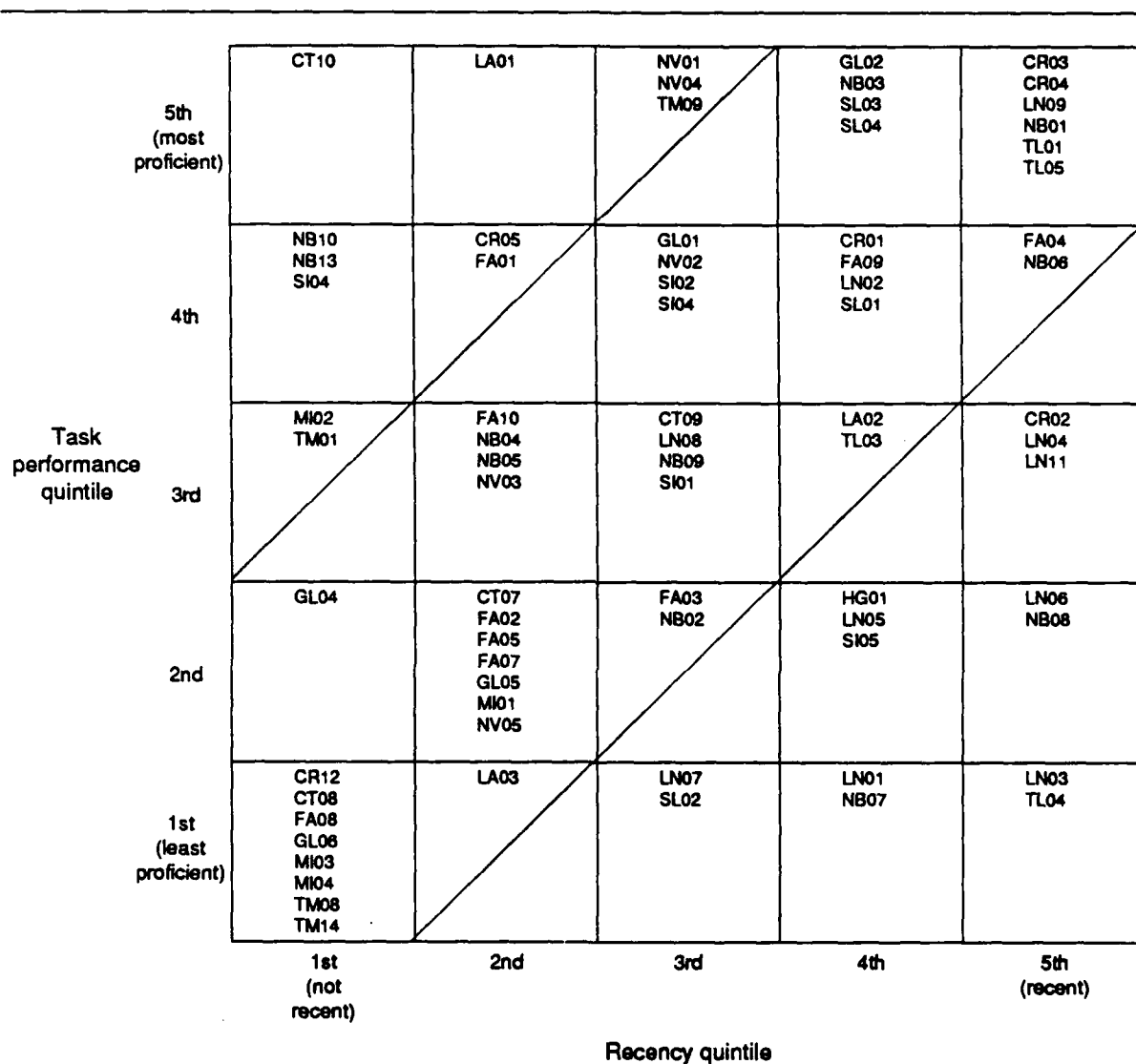


Figure 1. Relationship between task performance quintiles and recency quintiles



Several implications are evident from this analysis of the relationship between hands-on task performance and task recency. First, it is necessary to determine if any of the tasks composing the lower portion of the diagonal in figure 1 are of sufficient importance to warrant additional practice or training time. Importance could be defined by a variety of criteria: possible loss of life (treating abdominal wounds and amputated limbs), damage to equipment (restoration of expanded LAW), tactical importance (call for and adjust indirect fire), or threat to safety and protection of unit (installation and recovery of Claymore mines). For whatever reason, additional resources could then be devoted to these tasks so that hands-on performance levels could be improved. Second, the lower right triangle of figure 1 is somewhat disturbing in that recency of performance does not appear to have a noticeable effect on the relative hands-on performance levels of these tasks. However, it may be the case that a high degree of practice is required to sustain even a low level of task performance. Another possible explanation of this result is that the quality of recent task performance or practice might have been insufficient to impact hands-on performance. Finally, while the overall hands-on performance for these tasks was low and the extent to which the average Marine has the opportunity to perform these tasks was limited, there may be sufficient expertise within the unit to be able to successfully accomplish each of the tasks. A later section will examine the task performance differences across pay grades.

#### *Perishability of Task Performance*

The performances of individuals who have recently performed a task were compared with those of individuals who had not. In this manner, an estimate of how perishable skills are relative to an individual's level of recent experience can be obtained.

The correlations between hands-on performance and the recency ratings were computed for each task and are reported in table 5. High correlations reflect a greater effect of the recency of task performance on hands-on task performance and indicate that hands-on task performance is perishable if not performed on a regular basis. Conversely, small correlations indicate that hands-on performance is not affected by the recency to which one has performed the task and that task performance is relatively stable regardless of previous task experiences. Table 5 divides the basic infantry tasks into four groups along a continuum of "stable" to "perishable" based on the correlation of hands-on task performance and recency of performance. The four categories of stable, moderately stable, moderately perishable, and perishable are to some extent arbitrary, but are useful for broad generalizations.

Table 5. Correlation between hands-on task performance and recency of task performance

CT08	0.06			
CT10	0.02			
FA03	0.07			
FA04	0.07			
FA05	0.03			
FA07	0.05	CR01	0.19	
HG01	0.00	CT07	0.13	
LN09	0.08	CT09	0.15	
MI03	0.06	FA01	0.19	CR02 0.22
MI04	0.02	FA08	0.17	CR03 0.21
NB06	0.05	FA09	0.11	CR05 0.22
NB08	0.02	GL01	0.14	CR12 0.25
NB09	0.03	GL02	0.10	FA02 0.21 CR04 0.30
NB10	0.02	GL04	0.14	FA10 0.23 LA03 0.27
NV01	0.07	GL05	0.17	LA01 0.24 LN01 0.28
NV03	0.08	GL06	0.10	LA02 0.24 LN04 0.27
SI02	0.05	LN03	0.10	LN02 0.22 LN07 0.39
SI04	0.03	NB01	0.14	LN05 0.21 LN08 0.34
SI05	0.07	NB04	0.19	LN06 0.23 MI01 0.29
SL01	0.07	NB13	0.09	LN11 0.23 NB02 0.28
TL01	0.07	NV04	0.11	MI02 0.21 NB03 0.28
TL03	0.05	NV05	0.10	NB05 0.23 NV02 0.28
TL04	0.02	SI01	0.11	NB07 0.25 SL02 0.30
TL05	0.03	SI03	0.14	TM08 0.24 SL03 0.45
TM01	0.04	TM09	0.12	TM14 0.22 SL04 0.45
Stable		Moderately stable	Moderately perishable	Perishable
(0.00-0.09)		(0.10-0.19)	(0.20-0.25)	(0.26-0.45)

Three duty areas stand out as containing significant numbers of tasks that are perishable or moderately perishable: land navigation, LAW, and SAW. Conversely, tasks composing the security and intelligence and tactical measures duty areas are relatively stable tasks. The stable tasks tend to be factual and knowledge-based skills that do not involve "performance" per se, but more a recall of detailed procedures. The more perishable tasks necessitate actual hands-on performance and continual practice of the task for the maintenance of mastery. For example, the security and intelligence tasks require the memory and recall of many details and facts, not necessarily the performance of any complex actions: preparing a SALUTE report (SI02), inspecting and tagging personnel (SI04), and passing friendly personnel through lines (SI05). On the other hand, the tasks of the SAW duty area--fieldstripping (SL03) and assembling (SL04) a SAW--while also detailed, are performance oriented and are highly influenced by

practice. The NBC tasks also illustrate this distinction between stability and perishability within the same content area. Putting on protective clothing to MOPP level 4 (NB02) is perishable because it cannot be specifically performed as the result of instruction only; actual performance of the task is required for mastery. In contrast, although reacting to an aerial spray (NB08) requires recall of specific procedures and steps, performance of this task does not necessarily assist in the memory of the steps.

The important point to note from table 5 is that certain tasks are perishable if not performed or practiced on a regular basis. These tasks may deserve additional attention in the training workup cycle or immediately prior to deployment. However, it may be acceptable for some tasks to actually degrade in their performance level because they are not overly critical to or regularly performed in the conduct of a mission. Likewise, there may be certain stable tasks that should be continually reinforced, despite their relative stability, because they are so central and basic to the achievement of success.

#### Location Differences

Infantry testing was conducted at two locations: Camp Lejeune and Camp Pendleton. The previously presented information combined both locations to address task performance levels for the entire Marine Corps. This section will examine task performance and recency of task performance separately for each location. In this way, more detailed information is provided that can be used to target future training and performance emphases.

Just as performance can differ across tasks as a result of the recency of performance, locations can also differ in their level of task hands-on performance as a function of the recency to which that location has had the opportunity to perform the task. Table 6 presents the base differences for both of these variables in such a manner that potential implications for training and task performance are more apparent. Detailed information on task performance and recency by base are reported in appendix B.

The bases are equivalent with respect to task performance and recency of performance for 27 tasks. These tasks tend to cluster within four duty areas: communications, first aid, NBC defense, and SAW.

Table 6. Comparison of location differences for hands-on task performance and recency of task performance

Hands-on task performance	Recency of task performance	Task				
No performance or recency differences						
Bases equivalent	Bases equivalent	CR01 CT07 FA07 LN09 NB13 SL04	CR02 CT08 FA08 NI02 NV04 TM08	CR03 CT10 FA09 NB03 SI05	CR04 FA01 LN01 NB06 SL01	CR05 FA02 LN08 NB10 SL03
Performance differences potentially explained by recency differences						
Lejeune higher	Lejeune higher	GL06	LN02	MI04	NB07	
Pendleton higher	Pendleton higher	GL01 LA03 NV05	GL04 LN03 SI03	GL05 LN05 TL01	LA01 LN07	LA02 NV02
Performance differences possibly real						
Lejeune higher	Bases equivalent	NB01 TM14	NB04	NB08	SI02	SL02
Pendleton higher	Bases equivalent	FA05 NV01	HG01 NV03	LN04 SI01	LN06 TL05	LN11
Possibly inefficient training, practice, or performance of tasks						
Bases equivalent	Pendleton higher	CT09	GL02	TM01		
Bases equivalent	Lejeune higher	CR12 NB02	FA04 NB05	FA10 NB09	MI01	MI03
Possibly ineffective training, practice, or performance of tasks						
Lejeune higher	Pendleton higher	SI04	TL04	TM09		
Pendleton higher	Lejeune higher	FA03	TL03			

Although the bases differ in performance levels for an additional 17 tasks, the differences are mostly explained by differences in the recency of task performance.<sup>1</sup> That is, one base tends to practice certain tasks more frequently, and therefore it is reasonable to expect this base's task performance should be higher as a result. For example, Camp Pendleton performs better than Camp Lejeune on several grenade launcher tasks, but Camp Pendleton also has higher recency ratings, which fact implies that they practice these tasks more often than Camp Lejeune. The assumption is that if Camp Lejeune also practiced these grenade launcher tasks to the level that Camp Pendleton does, the two bases would have comparable performance.

Performance differences for those tasks on which the bases had equivalent performance recency could be real. Among the tasks for which Camp Lejeune appears to have the better performance, three are NBC defense tasks: give NBC visual alarm (NB01), treat nerve gas casualty (NB04), and react to aerial spray (NB08). Camp Pendleton was consistently better on several land navigation tasks: determine azimuth (LN04), determine grid coordinates (LN06), and measure distance on map (LN11).

Tasks for which the bases have equivalent performance but significantly different levels of performance recency could be the result of inefficient training or practice. Although the bases do not significantly differ on performance, given the level of practice devoted to these tasks, the expectation is that performance levels should be even higher. Therefore, Camp Pendleton may want to examine its training procedures for operating the TA-312 radio (CT09), preparing the grenade launcher for firing (GL02), and selecting and establishing a helicopter landing zone (TM01). Similarly, Camp Lejeune may want to evaluate training for the installation of the Claymore mine both with tripwires and with the electronic detonation device (MI01 and MI03); several NBC tasks (don protective clothing (NB02), first aid for blistering agent (NB05), and remove mask (NB09); two first aid tasks (fireman's carry (FA04), treat sucking chest wound (FA10); and construction of a field expedient antenna (CR12).

There are a limited number of tasks for which one base significantly outperformed the other base, but for which the other base reported a significantly higher level of performance recency (see appendix B for the detailed task information by base). This unexpected and inverse finding between performance and recency differences possibly identifies tasks for which the base with the more recent performance has

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1. From a strict statistical point of view, the base differences in recency of task performance do not completely account for the magnitude of the performance differences across bases. Given the potential for errors in self-report ratings and also the limited range of scores (i.e., 1 to 5), the ability to statistically adjust base performance scores for differences in performance recency is limited.

an ineffective program of training, practice, or task performance. Therefore, Camp Pendleton may benefit from reviewing the manner in which it provides instruction for inspecting and tagging prisoners and equipment (SI04), estimating range (TL04), and controlling unit movement when not in contact (TM09). Likewise, Camp Lejeune may profit by examining the instruction and practice provided for treatment for shock (FA03) and performing one-man carries (TL03).

#### PERFORMANCE AND REGENCY DIFFERENCES BY PAY GRADE

In addition to describing the task responsibilities of infantrymen, the Individual Training Standards (ITSs) also include a hierarchy of tasks delineating the pay grade at which Marines are expected to be proficient. The ITSs are intended to be an evaluation tool of individual performance by stating "what tasks an enlisted Marine of a given MOS and a given grade is supposed to be able to perform."<sup>1</sup> Task requirements are cumulative so that Marines in higher pay grades are responsible for any new tasks associated with their grade as well as for all previously assigned tasks.

Comparisons of Marines' ability to perform basic infantry tasks against the Marine Corps expectations as outlined in the ITSs were made in two ways. First, the relative performance differences between the pay grades were examined to determine if higher pay grades performed at higher levels. Second, the absolute levels of performance were also examined. For these analyses, all tasks on which Marines did not perform better than 50 percent of the steps correctly were noted. Similar analyses of pay grade differences were made for the ratings of task performance recency.

#### Significant Performance Differences Across Pay Grades

Figure 2 plots the mean task performance scores for three categories of pay grades: E1s and E2s, E3s, and E4s and E5s. Those tasks that have significant performance differences are noted with a plus (+), and a minus sign (-) indicates no differences between the pay grades. Appendix B provides detailed statistics on the performance of each task by the three pay grade categories.

Performance differences were significant between pay grades for 40 of the 75 basic infantry tasks such that the ordering of pay grades was as expected: E4s and E5s were the best performers, E3s were not as proficient as their superiors, and E1s and E2s were the least capable of performing the tasks. This expected ordering of pay grades did not occur for five tasks, although the differences between pay grades were not significant. For these tasks--recover Claymore mine (MI02), observe

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1. See enclosure 4, page 1 of Marine Corps Order 1510.35A, *Individual Training Standards (ITS) for Infantry, Occupational Field (OccFld) 03*, Unclassified, 22 Jan 1986.

with night vision device (NV04), assemble SAW (SL04), move individually (TL01), and estimate range (TL04)--all pay grades performed essentially at the same level. For the assembling the SAW (SL04) task, it may be expected that E4s and E5s do not significantly outperform the other pay grades, since this is relatively new weapon. Individual maneuvers (TL01) may have been somewhat demeaning in testing situations for corporals and sergeants, as they were required to perform the high and low crawls as well as a rush.

The ITSs assign corporals (E4s) and sergeants (E5s) the additional responsibility of being proficient in the following basic infantry tasks: construct field expedient antenna (CR12), all land navigation tasks, prepare NBC-1 report (NB13), and all upper level tactical measures tasks (TMxx tasks). For these tasks on which E4s and E5s are held specifically accountable, they performed significantly better than the other pay grades expect for two land navigation tasks: pace distance and follow azimuth. E4s and E5s performed better, but not significantly better on these tasks.

While the trend was such that higher pay grades tended to outperform lower pay grades, there were a significant number of tasks on which the percentage of correctly performed steps did not exceed 50 percent. Table 7 presents these task performance levels for each pay grade. Marines in pay grades E1 and E2 did not correctly perform greater than 50 percent of the required performance steps for 40 of the 75 basic infantry tasks. Of these 40 tasks, 13 tasks were not the responsibility of E1s and E2s but rather were requirements for higher pay grades. Similarly, Marines in pay grade E3 did not exceed 50 percent correct for 28 tasks, 7 of which were beyond their level of responsibility. Finally, E4s and E5s did not perform better than 50 percent correct for 16 tasks. Task performance patterns were consistent across pay grades so that if E1s and E2s performed at very low levels, it followed that higher pay grades similarly tended to perform at relatively low levels.

Such low performance levels indicate that infantrymen were not performing to the levels expected by the Marine Corps. While individuals did not have an opportunity to specifically prepare or train for the tasks that were tested, neither would such opportunities be available during times of crisis. In some cases, low performance levels may be a discrepancy between Marine Corps training doctrine and performance of the task in the field. For example, repair cut wire (CT08) required 14 discrete performance steps, the last of which is "did the repair work?" Most Marines were able to splice the wire so that the repair worked but the repair was easily broken again. The intent of the 13 previous performance steps was to ensure a sturdy repair. It was evident that Marines in the field did not adhere to their initial training. But this example was the exception rather than the rule with respect to the measurement of task performance--most Marines simply were not able to perform to the level expected of them as detailed in the Individual Training Standards.

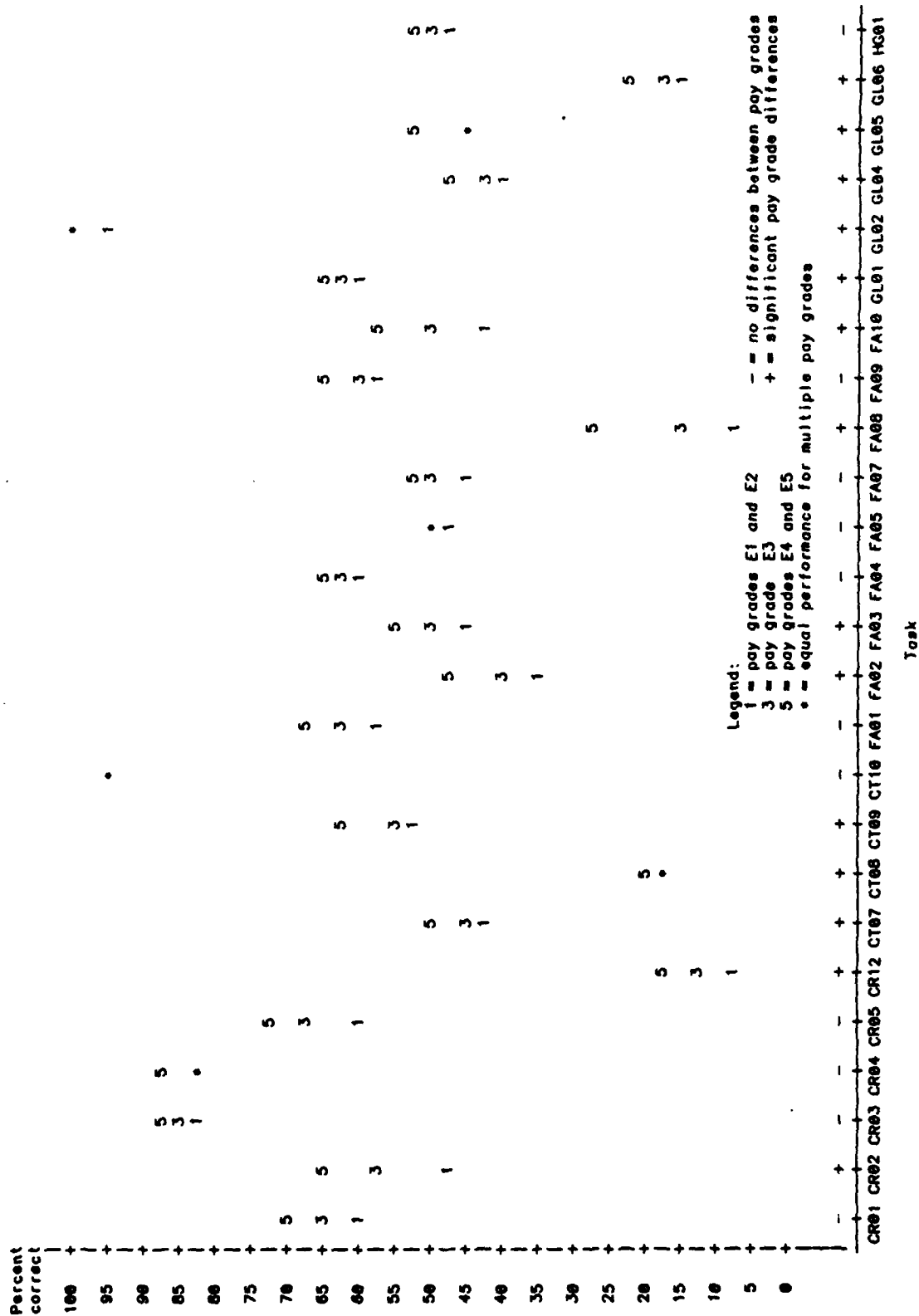


Figure 2. Differences in average task performance by pay grade





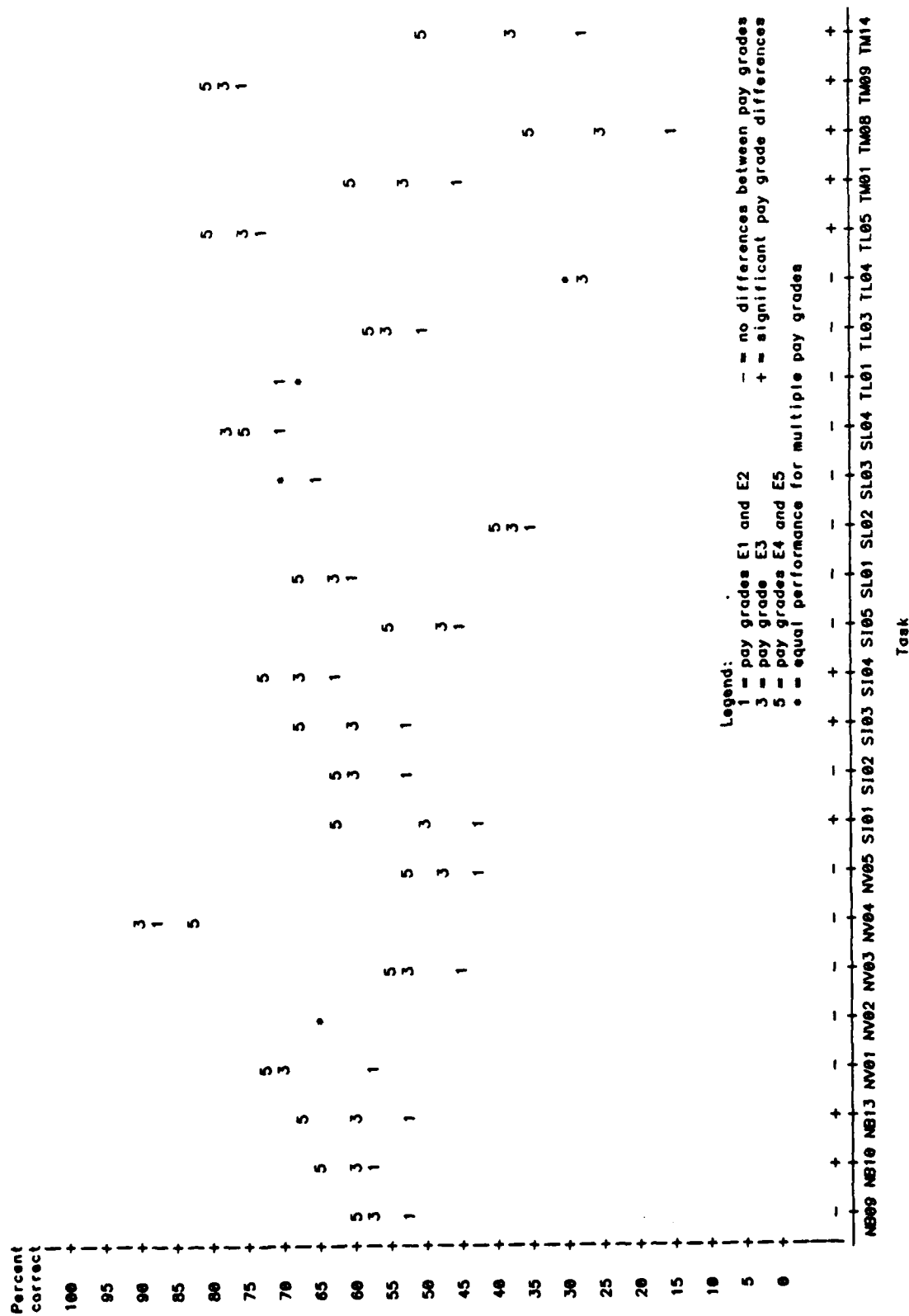


Table 7. Percentage of steps correctly performed for tasks on which performance did not exceed 50 percent

Task	Pay grade		
	E1 and E2	E3	E4 and E5
CR12 Construct field expedient antenna	7.7 <sup>a</sup>	11.8 <sup>a</sup>	17.7
FA08 Perform chest pressure - arm lift	7.9	16.2	28.6
NB07 Identify NATO NBC markers	14.6	20.7	30.9
GL06 Emplace stakes for grenade launcher	14.8	18.4	21.4
LN01 Set azimuth during night	15.4 <sup>a</sup>	22.0 <sup>a</sup>	41.8
TM08 Direct helicopter landing and takeoff	15.8 <sup>a</sup>	25.2 <sup>a</sup>	34.9
CT08 Repair cut wire	16.5	18.3	20.8
LN07 Determine location by resection	19.2 <sup>a</sup>	32.7 <sup>a</sup>	
MI03 Install Claymore mine with tripwire	20.1	20.0	24.5
TM14 Call for and adjust indirect fire	26.3 <sup>a</sup>	36.9 <sup>a</sup>	
LN03 Determine location map-terrain	28.0 <sup>a</sup>	34.8 <sup>a</sup>	
TL04 Estimate range	28.9 <sup>a</sup>	27.8	28.2
MI04 Recover Claymore mine with tripwire	29.2	30.0	33.4
LN05 Convert azimuth--magnetic and grid	31.5 <sup>a</sup>	47.9 <sup>a</sup>	
LN04 Determine azimuth from one point to another	32.4 <sup>a</sup>		
SL02 Operationally inspect SAW	32.7	38.4	41.0
LN08 Determine location by intersection	33.5 <sup>a</sup>		
NB08 React to aerial spray	34.8	40.4	48.2
LN06 Determine grid coordinates	35.2 <sup>a</sup>	44.9	
LA03 Restore expanded LAW	35.4	40.5	47.0
FA02 Perform CPR	36.0	40.7	48.3
GL04 Confirm zero for grenade launcher	41.0	43.6	47.2
FA10 Treat sucking chest wound	41.5		
CT07 Install TA-312 telephone set	41.8	45.3	
SI01 Observe and collect information	42.2		
NV05 Collect and report information	43.6	46.5	
MI01 Install Claymore mine electronic device	43.9	46.9	
SI05 Pass friendly personnel through lines	44.0	48.4	
NB05 Administer first aid for blistering agent	44.3		
GL05 Maintain grenade launcher	45.0	45.7	
FA07 Treat amputated limb	45.5	49.2	
TM01 Select/establish helicopter landing zone	45.6 <sup>a</sup>		
NV03 Clean components of night vision device	46.1		
FA03 Treat for shock	46.3	49.9	
CR02 Visually inspect PRC-77 radio	47.2		
NB02 Put on and wear protective clothing	47.2		
FA05 Administer first aid for abdominal wound	48.3	49.1	
HG01 Engage targets with hand grenade	48.5		
LN11 Measure distance on map	49.3 <sup>a</sup>		
NB04 Treat nerve gas casualty	49.6		

a. Task is not responsibility of that pay grade.

Table 8. Percentage of Marines who report that they have never performed task

Task	Pay grade		
	E1 and E2	E3	E4 and E5
TM08 Direct helicopter landing and takeoff	93 <sup>a</sup>	90 <sup>a</sup>	74
NB13 Prepare NBC-1 report	92 <sup>a</sup>	90 <sup>a</sup>	83
GL06 Emplace stakes for grenade launcher	89	78	73
TM14 Call for and adjust indirect fire	84 <sup>a</sup>	72 <sup>a</sup>	
CR12 Construct field expedient antenna	82	73 <sup>a</sup>	65
TM01 Select and establish helicopter landing zone	79 <sup>a</sup>	80 <sup>a</sup>	62
GL04 Confirm zero for grenade launcher	76	66	55
MI04 Recover Claymore mine with tripwire	75	72	78
GL05 Maintain grenade launcher	75	58	
MI03 Install Claymore mine with tripwire	72	67	73
TM09 Control unit movement when not in contact	70 <sup>a</sup>	63 <sup>a</sup>	
SI04 Inspect and tag prisoners and equipment	68	56	
CT08 Repair cut wire	68	68	66
FA08 Perform chest pressure - arm lift	67	64	55
FA10 Treat sucking chest wound	66		
CT10 Check parts of TA-312 telephone set	63	67	68
LN07 Determine location by resection	62		
NB10 Treat choking agent casualty	61	58	60
NB04 Treat nerve gas casualty	58		
LN08 Determine location by intersection	58 <sup>a</sup>		
GL01 Operationally inspect grenade launcher	56		
CR05 Take immediate action on PRC-77 radio	55	56	53
NV03 Clean components of night vision device	54		
SI01 Observe and collect information	53		
MI02 Recover Claymore mine with electronic device	53		
FA05 Administer first aid for abdominal wound	53		
SI02 Prepare SALUTE report	52		
NB05 Administer first aid for blistering agent	51		
CT07 Install TA-312 telephone set			
SL02 Operationally inspect SAW	52		

a. Task is not responsibility of that pay grade.

## Significant Recency Differences Across Pay Grades

The same comparisons by pay grades were made for the ratings of task performance recency. The mean recency ratings for each task are plotted in figure 3 and reported in appendix B. Fewer tasks had significant recency differences than had performance differences by pay grade. The recency differences also tended to be nested within duty areas: grenade launcher, land navigation, SAW, and upper level tactical measures. For all these duty areas except the SAW, E4s and E5s typically have more recent performance opportunities. As was pointed out, the SAW is a relatively new weapon with which E1s, E2s, and E3s report having significantly more recent performance opportunities.

Despite the Marine Corps' expectation that infantrymen are responsible for the performance of certain tasks, there were a large number that Marines reported they had never performed. Table 7 presents the percentage of Marines in each pay grade who report never having performed a task. The existence of tasks for which infantrymen are held responsible but have never had the opportunity to perform calls into question the Marine Corps' performance expectations. Is it reasonable to expect E1s and E2s to perform to standard on grenade launcher tasks, when 89 percent report never having emplaced stakes (GL06), 76 percent, never having zeroed the weapon, and 75 percent, never having maintained the launcher? If performance opportunities or training is not consistent with performance expectations, then performance expectations are suspect.

## SUMMARY OF FINDINGS

This research memorandum presented information concerning Marines' ability to perform basic infantry tasks. The description of the performance levels was intended to inform unit commanders and training instructors so that training resources and exercise workups can be focused to result in maximum performance outcomes for areas that are critical to pending operations.

The recency to which Marines have the opportunity to perform infantry tasks also varied considerably across tasks, implying an implicit importance ordering among the tasks. This ordering as outlined for duty areas in table 3 and detailed for tasks in appendix B, should be reviewed to determine if the current training and practice emphases are optimally directed.

It was also shown that some tasks are more amenable to recency of performance than others. Figure 1 illustrated the current training emphasis and the resulting performance outcomes. For most tasks, the return was proportional to the amount of practice invested--little practice time results in relatively low hands-on performance, significant practice time results in relatively high hands-on performance. However, there are a few tasks, primarily land navigation tasks, for which significant amounts of time are invested in recent performance but for which the resulting hands-on performance is relative low and not consistent with this degree of recent practice. While such high levels of practice may be required to sustain this relatively low level of

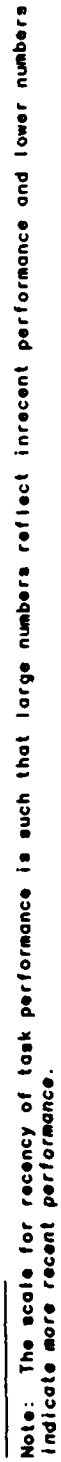
hands-on performance, review of the training procedures and practice sessions for such tasks may be beneficial.

The perishability of hands-on task performance was also examined. Tasks of the land navigation, SAW, and LAW duty areas were identified as perishable if not practiced on a regular basis. These "use it or lose it" tasks should be practiced just before deployment to ensure maximum potential performance. Likewise, certain stable tasks may need to be reinforced continually, despite their relative stability, because they are central to the successful accomplishment of a mission.

Location differences in hands-on performance and recency of task performance are to be expected, given that the first and second divisions have slightly different operational goals and deployment commitments, and therefore somewhat different training emphases. By examining performance differences as a function of location differences in performance recency, a more complete understanding of these differences develops, and implications can be drawn for the effectiveness of training and practicing procedures for the two bases.

The Marine Corps has higher performance requirements for infantrymen in higher grades. The hands-on performance data supported these expectations in that E4s and E5s typically outperformed their subordinates. With respect to pay grade differences for performance recency, it was evident that E4s and E5s have had significantly fewer opportunities to work with the SAW than the lower pay grades. The Marine Corps should consider supplementing the training and practice of E4s and E5s to ensure their proficiency for this weapon. The number of tasks that infantrymen reported they have never performed was significant. The existence of tasks for which infantrymen are doctrinally responsible, but which they rarely have the opportunity to perform, necessitates review of Marine Corps' performance requirements.

Application of the results of this research memorandum to training or practice modifications must reflect the value of each task to the overall accomplishment of a unit's mission. Such values of what is important or critical will vary as a function of mission requirements.



**Figure 3. Differences in average recency of task performance by pay grade**

Recency of task performance	LA01	LA02	LA03	LA04	LA05	LA06	LA07	LA08	LA09	LN01	LN02	LN03	LN04	LN05	LN06	LN07	LN08	LN09	LN11	MI01	MI02	MI03	MI04	NB01	NB02	NB03	NB04	NB05	NB06	NB07	NB08
5.00 +																															
4.85 +																															
4.70 +																															
4.55 +																															
4.40 +																															
4.25 +																															
4.10 +																															
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3.65 +																															
3.50 +																															
3.35 +																															
3.20 +																															
3.05 +																															
2.90 +																															
2.75 +																															
2.60 +																															
2.45 +																															
2.30 +																															

Legend:

1 = pay grades E1 and E2

3 = pay grade E3

5 = pay grades E4 and E5

• = equal recency for multiple pay grades

- = no differences between pay grades

+ = significant pay grade differences

Task



**Note:** The scale for recency of task performance is such that large numbers reflect infrequent performance and lower numbers indicate more recent performance.

**Figure 3. (Cont.)**

**APPENDIX A**

**HANDS-ON TESTS FOR SELECTED  
BASIC INFANTRY TASKS**

## **APPENDIX A**

### **HANDS-ON TESTS FOR SELECTED BASIC INFANTRY TASKS**

Sample answer sheets are included in this appendix for four basic infantry tasks: install (MI03) and recover (MI04) Claymore mine, determine location by resection (LN07), and put on battle dressing (FA09). These answer sheets, photocopies of the originals, illustrate the testing instructions read to the examinee, the recency and frequency ratings concerning previous task performance, and the steps that were scored go or no-go.

0300

SCORESHEET

Scorer: \_\_\_\_\_ Marine: \_\_\_\_\_

Date: \_\_\_\_\_ ID: \_\_\_\_\_

Last time you did: Put on a Battle Dressing  
 < 1 wk \_\_\_\_\_ < 1 mo \_\_\_\_\_ < 6 mos \_\_\_\_\_ > 6 mos \_\_\_\_\_ Never \_\_\_\_\_

How many times have you done this task during the last six months?

None \_\_\_\_\_ 1 or 2 \_\_\_\_\_ 3 to 10 \_\_\_\_\_ > 10 \_\_\_\_\_

Say: This test covers your ability to use a battle dressing. I have a bleeding wound here (point). I have no other injuries. You must stop the bleeding and protect the wound. Assume that you have just opened the dressing packet and the dressing is sterile. Begin.

PERFORMANCE STEPS

GO NO-GO

- |   |       |       |
|---|-------|-------|
| 1. Unfolded dressing and placed the white side directly over the wound without touching white part. | _____ | _____ |
| 2. Wrapped the tails around arm in opposite directions.   | _____ | _____ |
| 3. Covered edges of the white dressing with the tails (at least 1/2" overlap).                      | _____ | _____ |
| 4. Tied the tails in a non-slip knot.   | _____ | _____ |
| 5. Tied knot so it was not directly over the wound.   | _____ | _____ |

FA09B: Put on Battle Dressing

PERFORMANCE STEPS

GO

NO-GO

NOTE TO SCORER: Check tightness of dressing.

6. Tied dressing tight enough that it does not move, but loose enough that two fingers can be inserted between knot and dressing.

\_\_\_\_\_

\_\_\_\_\_

Say: The wound continues to bleed.

7. Applied pressure to the wound (by hand) or at the elbow or armpit (by finger).

\_\_\_\_\_

\_\_\_\_\_

8. Elevated the wound two to four inches above heart level while applying pressure.

\_\_\_\_\_

\_\_\_\_\_

Say: You have applied pressure for ten minutes and the wound continues to bleed.

9. Placed padding on top of the field dressing directly over the wound.

\_\_\_\_\_

\_\_\_\_\_

Folded the large cloth into a cravat.

NOT SCORED

10. Wrapped the cravat over the padding and around the limb.

\_\_\_\_\_

\_\_\_\_\_

11. Tied the cravat in a non-slip knot.

\_\_\_\_\_

\_\_\_\_\_

12. Tied knot directly over the wound.

\_\_\_\_\_

\_\_\_\_\_

NOTE TO SCORER: Check tightness of dressing.

13. Tied the pressure dressing tight enough so only the tip of one finger can be inserted between the pressure dressing and the knot.

\_\_\_\_\_

\_\_\_\_\_

LN07A: Determine Location by Resection

0300

SCORESHEET

Scorer: \_\_\_\_\_ Marine: \_\_\_\_\_

Date: \_\_\_\_\_ ID: \_\_\_\_\_

Last time you did: Determine Location by Resection  
 < 1 wk \_\_\_\_\_ < 1 mo \_\_\_\_\_ < 6 mos \_\_\_\_\_ > 6 mos \_\_\_\_\_ Never \_\_\_\_\_

How many times have you done this task during the last six months?  
 None \_\_\_\_\_ 1 or 2 \_\_\_\_\_ 3 to 10 \_\_\_\_\_ > 10 \_\_\_\_\_

Say: This test covers your ability to determine your location by resection. Look at this map. You know you are located somewhere along this riverbank. You can see the watertower here (point) and the building here (point). You have determined that the grid azimuth to the tower is 192°, and that the grid azimuth to the building is 359°. Now using the equipment here complete the test.

PERFORMANCE STEPS

GO NO-GO

1. Placed protractor on the map with the 0° indicator pointing to the top (north) of the map, and the index point centered on the distance objects.

\_\_\_\_\_

NOTE TO SCORER: Marine may lay off either azimuth first.

2. Draw a line from the known point through the unknown point.
3. Draw a line from the second known point until it crossed the first line

\_\_\_\_\_

\_\_\_\_\_

4. Lines crossed within template.

\_\_\_\_\_

NOTE TO SCORER: Place the template on the map where the two lines cross. Score a GO in step 4 if lines cross within template.

0300

SCORESHEET

Scorer: \_\_\_\_\_ Marine: \_\_\_\_\_

Date: \_\_\_\_\_ ID: \_\_\_\_\_

Last time you did: Install Claymore Mines with Tripwires  
< 1 wk \_\_\_\_\_ < 1 mo \_\_\_\_\_ < 6 mos \_\_\_\_\_ > 6 mos \_\_\_\_\_ Never \_\_\_\_\_

How many times have you done this task during the last six months?

None \_\_\_\_\_ 1 or 2 \_\_\_\_\_ 3 to 10 \_\_\_\_\_ > 10 \_\_\_\_\_

\* \* \* \* \*

Last time you did: Recover Claymore Mines with Tripwires  
< 1 wk \_\_\_\_\_ < 1 mo \_\_\_\_\_ < 6 mos \_\_\_\_\_ > 6 mos \_\_\_\_\_ Never \_\_\_\_\_

How many times have you done this task during the last six months?

None \_\_\_\_\_ 1 or 2 \_\_\_\_\_ 3 to 10 \_\_\_\_\_ > 10 \_\_\_\_\_

INSTALL

Say: In this test you will be required to install, aim, arm, and then recover the Claymore mine with tripwires. The aiming point is (designate the aiming point). The firing point is (indicate the firing point). Here is the equipment you need (point to stakes, bandoleer, etc.). Do you have any questions? Begin.

PERFORMANCE STEPS

GO NO-GO

Position Mine

Removed mine from bandoleer.

NOT SCORED

1. Opened both pairs of legs to a 45-degree angle with two legs facing to the front and two legs facing to the rear of the mine.

\_\_\_\_\_

PERFORMANCE STEPS

	<u>GO</u>	<u>NO-GO</u>
2. Pushed legs firmly one third the way into the ground.	_____	_____
Aim the Mine		
Slit-Type Peep Sight		
3. From the prone position, selected aiming point (tree, large rock, etc.) approximately 50 meters to the front of the mine and approximately 2-1/2 meters above the ground.	_____	_____
4. Positioned eye about 6 inches to the rear of the sight, while sighting through the peep sight.	_____	_____
5. Placed the groove of the sight in line with the aiming point.	_____	_____
NOTE TO SCORER: Check mine alignment.		
Say: Now arm the mine.		
6. Emplaced two tent stakes approximately 20 meters to the front of the mine, and spaced them 10 to 20 meters apart.	_____	_____
7. Removed protective cap from firing device.	_____	_____
NOTE TO SCORER: Do not allow Marine to actually crimp the blasting cap.		
8. Attached blasting cap to the standard base, using crimpers.	_____	_____
9. Taped one end of the detonating cord to the firing device end, containing the nonelectrical blasting cap.	_____	_____
10. Fastened firing device to one of the stakes, using tape, wire or cord.	_____	_____
11. Attached the tripwire to the pull ring of the M1 firing device.	_____	_____



PERFORMANCE STEPS

	<u>GO</u>	<u>NO-GO</u>
12. Attached a length of tripwire to the opposite stake (from firing device), and unrolled the wire as he moved back to the stake holding the firing device.	_____	_____
13. Drew the tripwire until the locking safety pin was pulled into the wide portion of the safety pin hole.	_____	_____
14. Moved to the mine, and emplaced a third stake slightly to the side of the mine containing the firing device.	_____	_____
15. Wrapped the loose end of the detonating cord securely around the stake, leaving at least 1 meter of cord overhang.	_____	_____
16. Inserted the loose end of the detonating cord into a nonelectric blasting cap and simulated crimping overhead.	_____	_____
17. Seated the cap (with detonating cord) in the shipping plug priming adapter and screwed the cap into the well.	_____	_____
18. Rechecked the mine for proper aim.	_____	_____
19. Returned to the firing device and with the attached string pulled out the locking safety pin.	_____	_____

RECOVER

SAY: Now recover the mine.

Inspected the mine and attached tripwires to determine if they had been altered, damaged, or boobytrapped.

NOT SCORED

20. Inserted the locking safety pin in safety pin hole on the firing device.

Say: What would you do next?

21. Simulated cutting the detonating cord free of the M1 using crimpers.
22. Disconnected the tripwire from pull ring.

MI03B: Install Claymore Mines with Tripwires  
MI04B: Recover Claymore Mines with Tripwires

PERFORMANCE STEPS

	<u>GO</u>	<u>NO-GO</u>
23. Recovered the firing device, stakes, and tripwires.	_____	_____
24. Unscrewed and removed the shipping plug primary adapter containing the blasting cap.	_____	_____
25. Screwed the shipping plug end of the adapter into the detonator well.	_____	_____
26. Removed the mine from its emplacement.	_____	_____
27. Replaced mine and accessories in bandoleer.	_____	_____
28. Prepared the non-electrical blasting caps, detonating cord and mine for separate storage.	_____	_____

**APPENDIX B**

**DESCRIPTIVE STATISTICS FOR HANDS-ON TASK PERFORMANCE  
AND REGENCY OF TASK PERFORMANCE RATINGS**

## APPENDIX B

### DESCRIPTIVE STATISTICS FOR HANDS-ON TASK PERFORMANCE AND REGENCY OF TASK PERFORMANCE RATINGS

The text discussed the levels to which Marines were able to perform basic infantry tasks and the recency to which they had the opportunity to perform those tasks. The previous discussions focused on the ordering of tasks into quintiles as a means of summarizing information for 75 tasks. This appendix provides more detailed information behind those orderings by presenting basic descriptive statistics for each task broken down by location and pay grade.

Over 1,900 first-term Marines were tested with hands-on performance tests. These examinees were mostly riflemen (over 1,000), with over 300 additional examinees also tested in each of the the machinegunner, mortarman, and assaultman specialties. Equal numbers of examinees for each specialty were tested at both testing locations: Camp Lejeune and Camp Pendleton. About 1,100 of the examinees tested were pay grade E3, with 300 E1s and E2s and almost 500 E4s and E5s.

Identifying significant differences in task performance and performance recency requires consideration of the distribution of task scores (standard errors) as well as the magnitude of the differences. Due to large variations in the standard deviations across task scores, no single number can be applied to the location or pay grade differences to declare the level of significance. Therefore, it may be the case that large differences for some tasks may be insignificant, while smaller differences for other tasks may be significant as a result of their smaller standard deviations.

Another consideration in computing task differences is the number of significance tests that are being conducted. For the two testing locations, 75 pairwise comparisons of means were made (even more comparisons could be made of combinations of task scores if these were of interest). As the number of comparisons increases, the likelihood of obtaining a significant finding as the result of chance also increases. Therefore, it is necessary to adjust the significance level associated with such comparison tests so as to minimize the possibility of capitalizing on chance occurrences. The significance level (also called alpha) was chosen to be 0.01 (one chance in 100 that the obtained result occurred by chance) for the difference in task performance and recency for testing location and pay grade. Therefore, the significance level for any single task comparison was much lower than 0.01 to compensate for the possibility of any significant chance occurrences. All tasks that had significant performance or recency differences are noted in tables B-1 to B-4 with an asterisk. Tables B-5 to B-7 provide an integration of the performance and recency levels for each task. Mean performance for four levels of recency are presented. A separate table

was provided for each pay grade, and a designation was noted for each task as to whether or not it was a responsibility (Resp) for that pay grade.

Table B-1. Hands-On Task Performance Statistics, by location

Task	Total		Lejeune		Pendleton	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
CR01	65.3	35.5	65.9	34.2	64.8	36.7
CR02	57.2	31.3	57.2	28.1	57.1	34.2
CR03	84.4	21.4	86.1	19.7	82.6	22.9
CR04	84.4	24.3	83.5	24.5	85.3	24.2
CR05	67.5	30.3	64.2	28.5	70.7	31.7
CR12	12.5	18.5	12.8	16.8	12.2	20.1
CT07	45.9	19.7	45.0	18.4	46.8	21.0
CT08	18.6	11.8	17.7	10.6	19.6	12.8
CT09	56.3	34.2	57.0	29.0	55.6	38.6
CT10	95.6	20.6	96.4	18.7	94.8	22.2
FA01	62.9	25.7	61.1	24.9	64.6	26.5
FA02	41.9	25.5	42.2	25.2	41.6	25.8
FA03*	50.7	28.2	48.3	28.0	53.0	28.2
FA04	62.4	34.7	61.3	33.5	63.6	35.9
FA05*	49.3	22.5	45.2	19.0	53.3	24.9
FA07	49.2	24.7	49.1	23.2	49.2	26.1
FA08	17.9	27.6	16.4	24.7	19.3	30.1
FA09	61.4	20.9	61.0	19.2	61.8	22.4
FA10	51.5	25.7	54.0	22.7	49.0	28.1
GL01*	62.6	16.9	57.6	19.1	67.5	12.8
GL02	98.5	11.5	97.6	14.6	99.4	7.1
GL04*	43.9	17.1	38.2	15.4	49.6	16.8
GL05*	47.3	25.1	34.9	18.8	59.6	24.6
GL06*	18.9	17.9	22.8	19.0	14.9	15.8
HG01*	50.7	19.5	45.6	18.9	55.8	18.7
LA01*	72.1	34.4	65.8	34.8	78.2	32.8
LA02*	56.3	22.4	51.8	20.4	60.8	23.4
LA03*	41.2	30.2	31.6	25.3	50.7	31.5
LN01	26.1	35.7	26.8	35.0	25.5	36.3
LN02*	59.3	26.3	62.0	25.5	56.8	26.8
LN03*	39.3	48.9	30.1	45.9	48.3	50.0
LN04*	55.5	45.6	51.0	45.5	59.9	45.2
LN05*	50.6	48.5	46.6	48.3	54.5	48.4
LN06*	50.1	46.8	43.7	46.7	56.3	46.1
LN07*	37.8	42.8	32.0	40.7	43.6	44.0
LN08	56.3	48.5	52.2	48.3	60.3	48.4
LN09	82.8	37.8	84.2	36.5	81.4	38.9
LN11*	57.2	32.8	52.8	33.3	61.6	31.8
MI01	45.9	25.9	46.5	26.1	45.3	25.7
MI02	58.8	26.8	59.6	23.9	58.0	29.2
MI03	21.1	21.6	22.4	19.3	19.9	23.6
MI04*	30.5	26.0	33.3	22.2	27.8	28.9
NB01*	90.5	21.9	93.8	16.7	87.2	25.8
NB02	50.8	21.6	51.4	20.0	50.2	23.1
NB03	71.8	27.5	71.6	24.1	71.9	30.6
NB04*	56.4	21.2	62.1	18.4	50.7	22.3
NB05	51.7	37.4	54.3	35.3	49.1	39.2
NB06	66.5	20.2	66.0	19.3	67.0	21.1
NB07*	22.4	21.7	24.8	21.2	19.9	21.9

Table B-1. (Continued)

Task	Total		Lejeune		Pendleton	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
NB08*	41.5	25.7	44.9	23.6	38.1	27.2
NB09	57.1	21.3	57.4	18.7	56.7	23.5
NB10	60.4	19.6	60.3	19.1	60.4	20.0
NB13	60.1	18.0	59.8	18.6	60.4	17.4
NV01*	67.8	46.7	58.7	49.3	77.1	42.1
NV02*	65.4	32.8	56.1	33.0	74.8	30.0
NV03*	51.8	27.1	47.1	24.1	56.6	28.9
NV04	87.1	33.5	83.5	37.1	90.7	29.1
NV05*	47.6	28.1	41.9	24.9	53.1	30.0
SI01*	51.9	26.9	47.6	24.6	56.1	28.4
SI02*	59.6	49.1	76.2	42.6	43.1	49.6
SI03*	60.9	30.5	58.2	28.0	63.6	32.5
SI04*	67.5	25.0	71.5	21.7	63.5	27.3
SI05	49.4	30.3	50.7	29.5	48.1	31.1
SL01	63.9	48.0	67.5	46.9	60.5	48.9
SL02*	38.4	25.0	40.8	24.3	36.0	25.5
SL03	69.8	23.6	68.2	22.2	71.4	24.8
SL04	75.9	28.4	75.8	26.6	76.0	30.1
TL01*	69.1	22.0	64.3	22.1	73.7	20.8
TL03*	54.4	26.5	51.8	26.3	56.9	26.4
TL04*	28.1	25.8	32.8	27.9	23.5	22.5
TL05*	75.2	17.0	68.7	16.1	81.7	15.2
TM01	53.4	23.2	53.9	23.4	52.9	23.1
TM08	26.3	21.2	27.4	21.6	25.2	20.8
TM09*	76.7	15.8	78.3	14.8	75.2	16.6
TM14*	38.9	31.7	43.4	32.5	34.5	30.3

Note: Task scores are percentage of steps correctly performed. Significant performance differences across locations are marked with an asterisk ( $\alpha = 0.01$ ).

Table B-2. Recency of Task Performance Statistics, by location

Task	Total		Lejeune		Pendleton	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
CR01	2.32	1.22	2.32	1.23	2.32	1.33
CR02	2.55	1.18	2.51	1.16	2.60	1.19
CR03	2.88	1.20	2.89	1.17	2.86	1.23
CR04	2.63	1.16	2.56	1.13	2.69	1.18
CR05	1.80	1.10	1.74	1.07	1.85	1.12
CR12*	1.40	0.76	1.48	0.81	1.33	0.71
CT07	1.72	0.87	1.71	0.84	1.72	0.90
CT08	1.49	0.84	1.49	0.80	1.49	0.88
CT09*	2.04	1.07	1.92	1.00	2.15	1.12
CT10	1.46	0.77	1.42	0.72	1.51	0.82
FA01	1.95	0.71	1.97	0.74	1.93	0.68
FA02	1.95	0.67	1.90	0.71	1.99	0.63
FA03*	2.10	0.83	2.17	0.83	2.04	0.82
FA04*	2.60	0.96	2.76	1.01	2.44	0.87
FA05	1.74	0.82	1.77	0.85	1.70	0.79
FA07	1.80	0.81	1.77	0.80	1.82	0.82
FA08	1.44	0.62	1.44	0.62	1.43	0.62
FA09	2.26	0.79	2.29	0.78	2.23	0.79
FA10*	1.73	0.81	1.84	0.83	1.63	0.79
GLO1*	2.00	1.07	1.81	0.99	2.19	1.11
GLO2*	2.20	1.00	1.99	0.88	2.42	1.06
GLO4*	1.48	0.79	1.37	0.65	1.59	0.89
GLO5*	1.83	1.21	1.58	1.05	2.07	1.30
GLO6*	1.35	0.81	1.44	0.92	1.27	0.68
HG01	2.52	0.83	2.56	0.85	2.48	0.82
LA01*	1.90	0.88	1.69	0.80	2.12	0.90
LA02*	2.21	0.80	2.08	0.72	2.34	0.85
LA03*	1.88	0.82	1.68	0.73	2.07	0.85
LN01	2.28	0.95	2.35	0.95	2.21	0.94
LN02*	2.51	0.83	2.58	0.90	2.45	0.75
LN03*	2.54	1.08	2.41	1.05	2.67	1.10
LN04	2.73	1.06	2.81	1.07	2.66	1.04
LN05*	2.42	1.05	2.21	1.00	2.62	1.07
LN06	3.01	1.06	2.95	1.01	3.07	1.10
LN07*	1.97	1.07	1.73	0.94	2.20	1.14
LN08	2.02	1.05	1.93	1.07	2.11	1.03
LN09	2.70	0.97	2.77	0.98	2.63	0.96
LN11	2.59	1.11	2.54	1.10	2.64	1.12
MI01*	1.84	0.67	1.96	0.74	1.72	0.59
MI02	1.65	0.65	1.70	0.72	1.59	0.57
MI03*	1.36	0.58	1.44	0.67	1.27	0.48
MI04*	1.30	0.55	1.37	0.64	1.24	0.45
NB01	2.59	0.90	2.65	0.83	2.53	0.95
NB02*	2.12	0.89	2.22	0.82	2.01	0.95
NB03	2.30	1.05	2.39	1.08	2.20	1.02
NB04	1.72	0.79	1.77	0.82	1.68	0.76
NB05*	1.75	0.81	1.88	0.86	1.62	0.73
NB06	3.02	1.03	3.01	1.00	3.03	1.06



Table B-2. (Continued)

Task	Total		Lejeune		Pendleton	
	Standard		Standard		Standard	
	Mean	Deviation	Mean	Deviation	Mean	Deviation
NB07*	2.26	0.77	2.38	0.79	2.15	0.74
NB08	2.67	1.00	2.70	0.96	2.64	1.05
NB09*	2.16	0.87	2.32	0.89	2.00	0.83
NB10	1.53	0.75	1.54	0.75	1.53	0.74
NB13	1.15	0.48	1.15	0.49	1.16	0.47
NV01	2.16	1.00	2.10	0.99	2.23	1.00
NV02*	2.00	0.99	1.88	0.94	2.11	1.03
NV03	1.90	1.01	1.82	0.98	1.97	1.04
NV04	2.18	0.96	2.14	0.89	2.23	1.03
NV05*	1.86	0.97	1.68	0.84	2.04	1.05
SI01	2.11	1.13	2.03	1.10	2.18	1.17
SI02	2.16	1.16	2.05	1.12	2.27	1.19
SI03*	2.16	0.96	2.08	0.91	2.25	1.00
SI04*	1.64	0.87	1.50	0.77	1.78	0.95
SI05	2.44	1.17	2.34	1.13	2.54	1.20
SL01	2.31	1.35	2.39	1.33	2.24	1.35
SL02	2.16	1.30	2.21	1.31	2.11	1.29
SL03	2.34	1.31	2.41	1.29	2.26	1.31
SL04	2.35	1.31	2.44	1.30	2.26	1.31
TL01*	2.98	1.13	2.89	1.10	3.07	1.15
TL03*	2.44	0.85	2.56	0.88	2.32	0.80
TL04*	2.65	1.05	2.49	0.93	2.81	1.13
TL05	3.62	1.05	3.58	0.96	3.66	1.13
TM01*	1.43	0.88	1.33	0.75	1.53	0.98
TM08	1.22	0.65	1.18	0.60	1.26	0.70
TM09*	1.98	1.26	1.85	1.19	2.11	1.32
TM14	1.59	0.97	1.53	0.93	1.65	1.00

Note: Task recency ratings were on a 1-to-5 scale such that 1 = never and 5 = within the last week. Significant recency differences across locations are marked with an asterisk ( $\alpha = 0.01$ ).

Table B-3. Hands-On Task Performance Statistics, by Pay Grade

Task	Total		Lejeune		Pendleton	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
CR01	60.2	35.4	64.7	36.2	70.0	33.2
CR02*	47.8	29.9	57.2	31.0	63.8	31.4
CR03	81.6	21.7	83.8	22.6	87.6	17.8
CR04	83.1	25.0	83.6	25.0	87.1	22.1
CR05	59.9	33.1	67.0	29.9	72.9	28.6
CR12*	7.5	14.4	11.7	17.7	17.5	21.4
CT07*	41.7	20.1	45.3	18.7	50.0	21.0
CT08*	16.4	10.2	18.3	12.1	20.8	11.7
CT09*	53.3	35.9	54.4	34.0	62.6	32.6
CT10	94.0	23.7	95.9	19.8	95.8	20.1
FA01	58.1	27.4	62.8	25.1	66.5	25.6
FA02*	35.9	24.4	40.8	25.1	48.1	26.0
FA03*	46.1	27.4	49.8	28.1	55.5	28.3
FA04	58.9	36.6	62.1	33.7	65.6	35.4
FA05	47.6	24.2	48.9	22.2	51.2	22.0
FA07	45.1	24.4	49.1	24.6	52.3	24.9
FA08*	7.6	19.6	16.0	25.5	27.9	32.6
FA09	57.5	22.3	60.7	20.9	65.3	19.6
FA10*	41.9	23.9	51.1	25.1	57.6	26.2
GL01*	59.1	19.6	62.5	16.5	65.0	15.7
GL02*	95.6	20.1	99.1	8.8	99.1	8.6
GL04*	41.1	17.1	43.5	16.9	46.7	17.3
GL05*	44.4	24.8	45.4	25.1	53.6	24.4
GL06*	15.3	17.6	18.6	17.7	21.8	18.2
HG01	48.5	19.6	50.2	19.2	53.4	19.8
LA01*	65.3	36.3	71.9	34.4	76.9	32.3
LA02*	51.3	23.2	55.9	21.6	60.5	23.0
LA03*	34.8	29.5	40.6	30.2	46.7	29.6
LN01*	15.5	26.5	22.0	32.7	42.2	41.6
LN02	57.7	26.8	58.5	26.6	62.3	25.0
LN03*	27.5	44.7	34.9	47.7	56.7	49.6
LN04*	32.6	43.3	51.6	45.9	78.9	34.9
LN05*	31.3	45.4	48.0	48.4	68.7	44.8
LN06*	35.6	44.4	44.9	46.3	70.8	42.7
LN07*	19.1	34.4	32.8	41.2	61.2	41.5
LN08*	33.3	45.5	52.5	48.9	81.1	38.1
LN09	75.2	43.4	83.5	37.1	85.5	35.3
LN11*	48.9	34.2	55.6	33.0	66.2	29.6
MI01	43.8	26.1	47.2	25.6	44.4	26.3
MI02	56.2	26.7	60.0	26.3	58.0	27.9
MI03	19.9	21.1	19.7	20.7	24.8	23.6
MI04	28.2	24.4	29.5	25.2	34.2	28.1
NB01	88.2	25.9	91.0	21.5	91.0	19.7
NB02	46.8	20.0	50.6	21.8	54.3	22.0
NB03*	63.4	31.2	71.8	27.4	77.8	23.1
NB04*	50.4	18.9	55.9	22.1	61.8	19.6
NB05	43.8	38.5	53.1	37.0	54.1	36.7
NB06*	59.0	21.0	65.2	20.0	73.8	18.0

Table B-3. (Continued)

Task	Total		Lejeune		Pendleton	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
NB07*	14.7	17.6	20.5	20.4	30.9	24.2
NB08*	34.9	23.5	40.3	25.1	47.9	26.9
NB09	52.0	20.9	57.1	20.3	59.8	22.9
NB10*	57.3	20.4	59.1	19.5	64.9	18.5
NB13*	51.5	19.4	59.4	17.6	67.2	14.9
NV01	58.4	49.4	69.0	46.3	71.9	45.0
NV02	65.0	33.0	66.0	31.9	64.6	34.8
NV03	45.4	27.3	52.3	27.0	55.5	26.3
NV04	86.9	33.9	89.4	30.9	82.3	38.3
NV05	43.5	26.6	46.6	27.4	52.1	30.1
SI01*	42.7	26.0	50.5	25.8	61.6	27.1
SI02	53.7	50.0	60.1	49.0	62.6	48.5
SI03*	52.4	32.2	60.5	30.8	67.3	26.9
SI04*	61.5	26.0	66.4	25.5	73.7	21.9
SI05	44.7	28.6	48.4	29.7	54.3	32.0
SL01	59.1	49.2	63.4	48.2	68.3	46.6
SL02	33.9	24.5	38.6	24.7	40.9	25.7
SL03	66.2	26.1	71.2	22.8	69.0	23.5
SL04	71.2	31.4	77.7	27.3	74.9	28.5
TL01	70.2	21.2	69.0	21.7	68.4	23.0
TL03	50.4	26.6	53.9	26.5	57.9	26.0
TL04	29.0	26.3	27.8	26.5	28.2	23.6
TL05*	72.3	18.0	74.2	16.9	79.4	15.6
TM01*	46.2	22.8	52.5	22.8	60.0	22.7
TM08*	16.1	15.9	25.2	20.2	35.2	23.1
TM09*	73.9	16.4	76.6	15.8	78.9	15.1
TM14*	27.8	29.5	37.0	30.7	50.4	31.9

Note: Task scores are percentage of steps correctly performed. Significant performance differences across pay grades are marked with an asterisk (alpha = 0.01).

Table B-4. Recency of Task Performance Statistics, by Pay Grade

Task	Total		Lejeune		Pendleton	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
CR01	2.35	1.17	2.31	1.23	2.31	1.23
CR02	2.63	1.03	2.53	1.20	2.56	1.22
CR03	2.83	1.17	2.89	1.19	2.89	1.25
CR04	2.69	1.04	2.62	1.16	2.59	1.21
CR05	1.82	1.10	1.77	1.07	1.86	1.14
CR12	1.32	0.78	1.40	0.77	1.47	0.74
CT07*	1.95	0.94	1.70	0.84	1.61	0.85
CT08	1.53	0.88	1.47	0.82	1.50	0.85
CT09	2.03	1.05	2.00	1.04	2.12	1.14
CT10	1.60	0.89	1.45	0.76	1.41	0.72
FA01	1.90	0.81	1.95	0.70	1.97	0.65
FA02	1.85	0.74	1.95	0.68	2.01	0.61
FA03	2.13	0.87	2.10	0.82	2.10	0.84
FA04	2.63	0.87	2.67	1.01	2.42	0.88
FA05	1.70	0.91	1.72	0.80	1.80	0.81
FA07	1.84	0.89	1.77	0.80	1.82	0.78
FA08	1.41	0.67	1.42	0.62	1.49	0.59
FA09	2.34	0.85	2.23	0.77	2.27	0.78
FA10	1.49	0.74	1.78	0.83	1.76	0.80
GL01*	1.75	1.03	1.96	1.03	2.26	1.13
GL02*	1.94	1.09	2.21	0.98	2.35	0.96
GL04	1.38	0.83	1.46	0.76	1.59	0.81
GL05*	1.51	1.04	1.79	1.18	2.10	1.30
GL06*	1.18	0.61	1.36	0.82	1.44	0.89
HG01*	2.65	0.79	2.56	0.86	2.35	0.76
LA01	1.92	1.00	1.91	0.89	1.88	0.76
LA02	2.31	0.96	2.22	0.78	2.11	0.71
LA03	1.90	0.99	1.87	0.81	1.88	0.70
LN01*	2.32	0.98	2.17	0.92	2.49	0.96
LN02*	2.70	0.85	2.50	0.84	2.43	0.79
LN03*	2.39	1.02	2.43	1.06	2.89	1.09
LN04*	2.59	1.01	2.63	1.02	3.05	1.09
LN05*	2.27	1.01	2.28	1.00	2.83	1.08
LN06*	2.92	0.89	2.87	1.06	3.37	1.08
LN07*	1.65	0.99	1.85	1.01	2.44	1.11
LN08*	1.72	0.95	1.93	1.06	2.45	0.98
LN09	2.64	0.95	2.63	0.94	2.89	1.04
LN11*	2.36	1.03	2.48	1.09	2.98	1.11
MI01*	1.98	0.83	1.87	0.65	1.66	0.57
MI02	1.63	0.75	1.68	0.65	1.57	0.58
MI03	1.37	0.65	1.38	0.59	1.30	0.52
MI04	1.31	0.60	1.33	0.58	1.22	0.45
NB01	2.58	0.87	2.57	0.92	2.63	0.87
NB02	2.12	0.98	2.12	0.90	2.11	0.79
NB03	2.27	1.08	2.29	1.05	2.33	1.03
NB04	1.59	0.79	1.71	0.76	1.85	0.83
NB05	1.77	0.91	1.73	0.80	1.78	0.76
NB06	3.04	1.08	2.98	1.02	3.11	1.03
NB07	2.19	0.79	2.28	0.79	2.26	0.72
NB08	2.56	0.98	2.71	1.01	2.65	1.00
NB09	2.13	0.97	2.21	0.88	2.07	0.79

Table B-4. (Continued)

Task	Total		Lejeune		Pendleton	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
NB10	1.54	0.79	1.53	0.72	1.54	0.79
NB13	1.11	0.39	1.13	0.45	1.23	0.58
NV01	2.28	1.03	2.10	0.93	2.22	1.11
NV02	2.09	1.05	1.98	0.94	1.98	1.07
NV03	1.82	1.05	1.89	0.96	1.98	1.09
NV04*	2.49	0.95	2.12	0.93	2.15	1.01
NV05	2.06	1.06	1.83	0.95	1.83	0.94
SI01*	1.84	1.10	2.03	1.12	2.47	1.11
SI02*	1.88	1.16	2.07	1.13	2.58	1.13
SI03	2.01	1.04	2.16	0.97	2.26	0.86
SI04*	1.48	0.80	1.65	0.89	1.74	0.86
SI05	2.31	1.29	2.48	1.17	2.44	1.09
SL01*	2.29	1.36	2.41	1.37	2.10	1.25
SL02*	2.18	1.34	2.28	1.34	1.86	1.14
SL03*	2.39	1.32	2.48	1.34	1.97	1.14
SL04*	2.42	1.34	2.48	1.34	2.00	1.14
TL01	2.83	1.08	3.05	1.14	2.91	1.12
TL03	2.51	0.89	2.44	0.86	2.37	0.79
TL04	2.61	1.01	2.59	1.04	2.80	1.08
TL05	3.48	0.97	3.69	1.05	3.55	1.09
TM01	1.41	0.90	1.38	0.87	1.57	0.87
TM08*	1.12	0.51	1.18	0.63	1.38	0.75
TM09*	1.59	1.02	1.78	1.19	2.69	1.30
TM14*	1.31	0.79	1.49	0.92	2.00	1.06

Note: Task recency ratings were on a 1-to-5 scale such that 1 = never and 5 = within the last week. Significant performance differences across pay grades are marked with an asterisk (alpha = 0.01).

Table B-5. Mean task performance score for task recency levels: pay grades E1 and E2

Task	Resp	Task recency level										Total	
		Never		> 6 months		1-6 months		< 4 weeks		Mean	N		
		Mean	N	Mean	N	Mean	N	Mean	N				
CR01	Yes	49.5	94	57.7	71	63.8	89	71.5	50	59.2	304		
CR02	Yes	41.3	26	42.4	46	48.9	70	57.0	25	47.2	167		
CR03	Yes	75.6	27	86.7	36	79.7	61	82.8	43	81.3	167		
CR04	Yes	79.1	38	76.8	88	84.1	120	93.4	58	83.1	304		
CR05	Yes	54.7	76	56.1	26	71.5	22	85.7	13	60.6	137		
CR12	No	6.9	249	11.3	23	10.0	16	13.3	15	7.7	303		
CT07	Yes	41.6	124	39.7	70	42.6	92	51.5	11	41.8	297		
CT08	Yes	16.1	203	17.2	50	15.9	35	20.8	12	16.5	300		
CT09	Yes	52.5	125	52.8	65	54.6	88	57.3	25	53.6	303		
CT10	Yes	91.7	192	98.0	51	96.0	50	100.0	11	93.8	304		
FA01	Yes	49.3	54	61.3	82	71.5	24	80.9	7	58.9	167		
FA02	Yes	27.7	96	41.5	152	37.0	46	25.5	6	36.0	302		
FA03	Yes	44.2	73	45.8	137	48.0	75	51.4	18	46.3	303		
FA04	Yes	48.5	11	54.9	68	64.0	62	69.3	26	60.1	167		
FA05	Yes	46.2	89	48.6	45	54.6	23	50.4	10	48.3	167		
FA07	Yes	44.3	72	44.4	53	48.5	33	46.7	7	45.5	165		
FA08	Yes	5.4	92	9.4	32	23.8	12	0.0	1	7.9	137		
FA09	Yes	53.4	21	54.9	64	60.7	39	59.7	12	56.8	136		
FA10	Yes	38.9	90	53.3	29	34.8	16	43.0	1	41.5	136		
GL01	Yes	56.3	168	60.8	66	62.8	45	71.8	23	59.4	302		
GL02	Yes	93.9	140	97.9	73	100.0	59	96.9	32	96.4	304		
GL04	Yes	39.7	231	43.8	37	41.8	22	54.6	13	41.0	303		
GL05	Yes	42.3	223	52.5	22	56.6	28	50.3	23	45.0	296		
GL06	Yes	14.4	264	15.0	19	21.6	7	21.4	7	14.8	297		
HC01	Yes	25.0	4	50.6	132	48.2	120	44.1	34	48.5	290		
LA01	Yes	53.4	131	71.1	77	76.4	72	83.0	22	65.6	302		
LA02	Yes	37.9	64	54.1	100	55.3	109	62.3	30	51.9	303		
LA03	Yes	27.7	133	41.3	84	40.0	63	45.5	22	35.4	302		
LN01	No	8.0	71	17.1	93	16.3	114	25.9	27	15.4	305		
LN02	No	35.0	12	55.3	114	59.7	128	66.5	46	58.1	300		
LN03	No	21.1	76	36.8	76	25.4	114	31.6	38	28.0	304		
LN04	No	22.9	48	28.6	84	36.1	132	39.2	40	32.4	304		
LN05	No	31.9	80	38.0	96	22.2	97	40.0	30	31.5	303		
LN06	No	19.4	18	32.4	68	32.4	159	50.8	60	35.2	305		
LN07	No	12.8	188	24.5	53	23.9	46	60.3	17	19.2	304		
LN08	No	22.7	97	42.0	27	48.2	38	77.7	6	33.5	168		
LN09	No	64.7	17	76.2	42	74.0	50	80.0	25	74.6	134		
LN11	No	41.6	74	46.8	88	55.5	112	52.8	31	49.3	305		
MI01	Yes	35.9	52	45.3	59	50.0	44	60.5	4	43.9	159		
MI02	Yes	55.1	85	50.8	48	67.2	28	0.0	0	55.9	161		
MI03	Yes	19.3	97	22.4	26	22.1	12	0.0	0	20.1	135		
MI04	Yes	28.3	101	29.9	23	36.5	10	0.0	0	29.2	134		

Table B-5. (Cont.)

Task	Resp	Task recency level										Total	
		Never		> 6 months		1-6 months		< 4 weeks				Mean	N
		Mean	N	%	Mean	N	%	Mean	N	%	Mean		
NB01	Yes	65.0	16	10	91.4	63	38	89.3	67	40	90.0	87.9	168
NB02	Yes	42.5	57	34	49.5	46	28	49.1	51	31	53.3	47.2	167
NB03	Yes	49.4	48	29	64.2	48	29	69.8	48	29	79.1	63.6	167
NB04	Yes	47.4	97	58	51.9	44	26	53.2	24	14	56.3	49.6	168
NB05	Yes	40.0	85	51	40.9	40	24	54.3	35	21	66.6	44.3	167
NB06	Yes	51.7	10	7	59.7	31	23	55.4	51	38	63.1	58.6	136
NB07	Yes	7.1	28	20	12.9	60	44	19.7	45	33	35.8	14.6	137
NB08	Yes	31.1	19	14	28.9	44	33	41.0	49	37	35.9	34.8	134
NB09	No	46.8	41	31	51.0	47	35	56.5	35	26	57.3	51.7	134
NB10	Yes	57.0	83	61	55.9	33	24	57.1	16	12	70.7	57.0	135
NB13	No	51.0	277	92	51.4	20	7	54.7	3	1	76.5	51.3	302
NV01	Yes	54.3	46	28	59.1	44	27	64.3	56	34	50.0	58.4	166
NV02	Yes	55.2	113	38	70.5	72	24	73.3	83	28	78.2	66.3	298
NV03	Yes	46.4	90	54	47.0	33	20	45.4	27	16	43.8	46.1	166
NV04	Yes	75.0	24	18	90.5	42	31	86.5	52	38	89.5	86.1	137
NV05	Yes	39.8	52	38	41.3	35	26	46.6	34	25	55.3	43.6	136
SL01	Yes	56.1	132	43	52.2	46	15	57.6	66	22	65.0	57.6	304
SL02	Yes	26.4	143	47	34.8	46	15	32.7	64	21	48.4	32.7	304
SL03	Yes	50.0	116	38	70.3	51	17	72.6	74	24	83.0	65.7	304
SL04	Yes	50.1	112	37	76.4	51	17	79.1	75	25	91.5	70.7	304
SL01	Yes	39.6	87	53	52.7	35	21	40.3	27	16	36.8	42.2	165
SL02	Yes	46.0	87	52	65.8	38	23	60.0	20	12	45.5	52.1	167
SL03	Yes	45.2	126	41	58.2	82	27	54.2	71	23	67.0	52.6	304
SL04	Yes	60.9	207	68	62.5	55	18	60.0	35	12	58.6	61.0	304
SL05	Yes	33.7	51	38	52.3	31	23	40.8	24	18	55.9	44.0	135
TL01	Yes	65.4	32	11	68.5	87	29	72.3	102	34	69.2	69.6	302
TL03	Yes	38.7	35	12	48.3	118	39	55.6	116	39	51.1	50.3	301
TL04	No	21.6	38	13	31.3	96	32	31.0	116	39	24.8	28.9	300
TL05	Yes	72.3	4	1	76.9	44	15	71.1	100	33	72.1	72.5	300
TM01	No	45.2	240	79	50.0	25	8	47.8	23	8	40.6	45.6	304
TM08	No	15.3	284	93	30.5	8	3	18.6	7	2	20.0	15.8	304
TM09	No	73.8	211	70	66.4	32	11	75.5	36	12	79.5	73.7	303
TM14	No	25.0	255	84	38.4	17	6	35.6	15	5	26.1	26.3	303

Table B-6. Mean task performance score for task recency levels: pay grade E3

Task	Resp	Task recency level										Total	
		Never		> 6 months		1-6 months		< 4 weeks				Mean	N
		Mean	N	%	Mean	N	%	Mean	N	%	Mean		
CR01	Yes	57.0	355	32	61.9	330	30	73.0	208	19	74.6	204	19
CR02	Yes	44.0	112	21	56.2	190	36	64.2	118	22	64.4	113	21
CR03	Yes	64.6	57	11	81.1	176	33	87.9	140	26	89.6	159	30
CR04	Yes	70.5	176	16	79.8	404	37	87.8	260	24	93.6	252	23
CR05	Yes	64.0	315	56	66.7	133	24	72.8	60	11	80.4	54	10
CR12	No	9.4	792	73	15.4	198	18	23.8	55	5	24.5	37	3
CT07	Yes	42.3	536	49	47.3	399	37	49.4	116	11	52.4	40	4
CT08	Yes	17.3	736	68	20.9	244	22	20.8	62	6	19.0	43	4
CT09	Yes	48.1	416	38	55.6	400	36	56.5	172	16	68.2	109	10
CT10	Yes	96.0	731	67	96.7	273	25	95.3	64	6	92.6	27	2
FA01	Yes	53.6	126	24	65.3	320	60	65.2	73	14	80.8	11	2
FA02	Yes	29.5	254	23	43.5	669	61	45.6	148	14	51.4	20	2
FA03	Yes	45.1	238	22	50.3	583	53	54.1	208	19	50.8	66	6
FA04	Yes	53.3	15	3	63.0	297	56	58.3	119	22	64.5	102	19
FA05	Yes	49.0	245	46	49.8	212	40	48.0	55	10	47.9	21	4
FA07	Yes	46.8	224	42	51.5	227	43	51.7	62	12	42.8	19	4
FA08	Yes	13.2	360	64	22.1	179	32	20.0	20	4	10.8	4	1
FA09	Yes	58.4	74	13	60.6	324	57	61.7	137	24	63.2	29	5
FA10	Yes	44.1	246	44	53.9	219	39	62.3	80	14	64.7	19	3
GL01	Yes	60.5	409	38	63.0	449	41	63.5	126	12	67.6	106	10
GL02	Yes	97.1	225	21	99.5	565	52	99.7	187	17	99.6	116	11
GL04	Yes	42.6	721	66	43.7	288	26	49.5	55	5	54.0	30	3
GL05	Yes	42.1	618	58	47.7	242	23	51.7	75	7	54.6	136	13
GL06	Yes	17.5	846	78	20.0	143	13	22.7	47	4	24.4	45	4
HG01	Yes	58.8	15	1	49.6	631	60	51.3	246	24	52.1	152	15
LA01	Yes	60.6	376	34	75.5	526	48	87.7	118	11	78.1	73	7
LA02	Yes	43.9	117	11	55.1	724	66	61.5	165	15	67.8	89	8
LA03	Yes	31.0	363	33	41.8	574	53	58.1	102	9	58.0	54	5
LN01	No	11.3	241	22	19.6	553	51	32.9	199	18	38.6	100	9
LN02	No	43.5	40	4	54.2	642	59	63.0	265	24	72.2	136	13
LN03	No	26.4	208	19	37.3	434	40	33.2	274	25	40.8	179	16
LN04	No	25.2	106	10	45.7	466	43	58.3	323	30	68.9	199	18
LN05	No	35.0	253	23	47.1	447	41	53.0	268	24	65.9	126	12
LN06	No	23.2	69	6	37.0	388	35	48.0	357	33	57.3	279	26
LN07	No	21.1	513	47	34.7	351	32	51.7	158	14	63.2	74	7
LN08	No	37.9	227	43	57.8	170	32	68.2	86	16	78.9	41	8
LN09	No	58.3	36	6	84.4	256	46	86.3	168	30	84.5	97	17
LN11	No	40.6	184	17	53.0	450	41	63.5	280	26	65.5	178	16
MI01	Yes	34.4	129	25	50.0	335	66	57.5	37	3	68.8	10	2
MI02	Yes	52.6	201	39	63.4	286	56	76.0	17	3	78.0	9	2
MI03	Yes	19.6	375	67	19.9	160	29	25.4	18	3	44.0	3	1
MI04	Yes	30.2	394	72	28.1	136	25	36.8	16	3	52.8	4	1



Table B-6. (Cont.)

Task	Resp	Task recency level												Total	
		Never			> 6 months			1-6 months			< 4 weeks				
		Mean	N	%	Mean	N	%	Mean	N	%	Mean	N	%	Mean	N
NB01	Yes	81.5	40	8	88.9	243	46	94.9	167	31	92.9	82	15	90.8	532
NB02	Yes	38.2	133	26	52.2	236	45	57.1	110	21	63.4	42	8	50.6	521
NB03	Yes	58.7	128	25	71.6	200	38	76.0	116	22	87.3	78	15	71.8	522
NB04	Yes	50.8	239	45	58.7	226	42	61.8	57	11	60.2	10	2	55.5	532
NB05	Yes	43.5	249	47	57.9	191	36	69.1	81	15	55.0	10	2	52.8	531
NB06	Yes	61.0	25	4	65.9	172	30	65.3	213	38	64.4	154	27	65.1	564
NB07	Yes	13.7	65	12	16.9	321	57	30.4	140	25	29.9	37	7	20.7	563
NB08	Yes	41.4	43	8	41.5	226	41	37.3	160	29	42.0	119	22	40.4	548
NB09	Yes	55.6	100	18	58.0	296	54	57.3	114	21	56.3	41	7	57.3	551
NB10	Yes	59.6	324	58	57.7	194	34	61.5	34	6	60.6	11	2	59.1	563
NB13	No	59.1	985	90	61.1	75	7	66.9	24	2	59.0	5	0	59.4	1089
NV01	Yes	59.2	142	27	70.2	255	48	75.6	86	16	78.7	47	9	68.9	530
NV02	Yes	55.9	362	33	67.2	492	45	76.7	143	13	83.4	89	8	66.0	1086
NV03	Yes	48.7	219	41	51.9	198	37	59.0	72	14	58.8	40	8	52.1	529
NV04	Yes	83.8	136	24	89.4	282	50	97.9	94	17	85.4	48	9	89.1	560
NV05	Yes	43.4	241	43	50.0	219	39	49.6	56	10	41.1	39	7	46.5	555
SL01	Yes	59.4	355	32	60.8	329	30	61.8	157	14	72.0	257	23	63.1	1098
SL02	Yes	30.9	402	37	36.2	317	29	43.1	151	14	51.4	228	21	38.4	1098
SL03	Yes	55.1	307	28	70.9	349	32	79.0	177	16	85.8	264	24	71.4	1097
SL04	Yes	59.3	310	28	77.2	343	31	88.0	176	16	93.3	268	24	77.8	1097
SI01	Yes	47.7	208	39	52.5	185	35	52.1	64	12	54.4	72	14	50.8	529
SI02	Yes	56.4	204	38	56.8	183	34	71.8	71	13	68.0	75	14	60.2	533
SI03	Yes	55.4	281	26	60.5	487	45	61.8	223	20	68.1	102	9	60.2	1093
SI04	Yes	66.5	612	56	65.5	317	29	65.4	112	10	71.0	52	5	66.3	1093
SI05	Yes	43.2	130	24	50.6	178	32	50.4	133	24	48.8	111	20	48.4	552
TL01	Yes	60.2	44	4	69.5	378	35	69.3	277	25	70.0	388	36	69.2	1087
TL03	Yes	52.1	66	6	52.9	633	58	58.0	266	24	53.5	121	11	54.2	1086
TL04	Yes	26.2	97	9	28.9	507	48	27.6	248	23	26.1	207	20	27.8	1059
TL05	Yes	52.8	4	0	75.5	170	16	71.7	281	26	74.9	635	58	74.1	1090
TM01	No	52.3	874	80	54.0	99	9	53.0	67	6	51.8	56	5	52.5	1096
TM08	No	23.6	986	90	34.1	60	5	45.2	25	2	47.5	25	2	25.2	1096
TM09	No	76.2	689	63	74.1	140	13	77.0	132	12	80.5	134	12	76.5	1095
TM14	No	34.0	785	72	42.3	156	14	46.0	90	8	48.6	59	5	36.9	1090

Table B-7. Mean task performance score for task recency levels: pay grades E4 and E5

Task	Resp	Task recency level										Total	
		Never		> 6 months		1-6 months		< 4 weeks		Mean	N		
		Mean	N	Mean	N	Mean	N	Mean	N				
CR01	Yes	60.2	144	71.8	173	71.2	66	79.9	96	69.9	479		
CR02	Yes	49.4	44	60.2	91	70.6	45	75.0	57	63.7	237		
CR03	Yes	86.9	29	88.2	71	82.4	58	92.1	78	87.9	236		
CR04	Yes	74.5	84	84.4	189	92.4	88	97.5	118	87.3	479		
CR05	Yes	64.4	127	82.4	64	73.9	17	86.1	33	72.8	241		
CT02	Yes	13.7	307	21.1	122	32.9	31	44.3	12	17.7	472		
CT07	Yes	47.4	263	52.0	156	61.3	33	58.2	22	50.4	474		
CT08	Yes	20.6	312	21.5	115	24.0	20	17.8	26	20.8	473		
CT09	Yes	56.5	167	64.1	179	63.7	66	72.8	66	62.6	478		
CT10	Yes	94.8	326	97.5	121	93.8	16	100.0	16	95.6	479		
FA01	Yes	62.2	46	66.9	155	73.1	30	75.0	6	67.0	237		
FA02	Yes	31.9	71	50.5	347	53.2	49	60.3	12	48.3	479		
FA03	Yes	54.1	104	55.5	261	56.4	82	57.8	32	55.5	479		
FA04	Yes	70.1	10	61.3	160	76.1	32	79.4	34	66.3	236		
FA05	Yes	50.4	89	50.9	117	56.2	19	54.4	12	51.3	237		
FA07	Yes	52.3	83	50.6	123	62.7	20	53.3	11	52.3	237		
FA08	Yes	22.8	132	34.3	100	47.7	9	43.0	1	28.6	242		
FA09	Yes	57.0	26	63.5	149	68.5	50	77.8	17	64.8	242		
FA10	Yes	54.2	106	58.1	91	64.9	37	69.3	7	57.8	241		
GL01	Yes	63.1	109	65.1	234	68.0	63	65.2	73	65.0	479		
GL02	Yes	96.4	56	99.1	285	100.0	71	100.0	66	99.1	478		
GL04	Yes	46.1	263	47.0	168	51.2	26	57.1	21	47.2	478		
GL05	Yes	49.7	199	56.2	147	61.6	41	56.5	82	54.0	469		
GL06	Yes	21.0	344	20.5	83	25.6	17	26.8	28	21.4	472		
HG01	Yes	50.1	10	53.9	328	52.4	77	53.7	40	53.6	455		
LA01	Yes	65.3	134	80.0	290	93.8	32	92.9	21	77.4	477		
LA02	Yes	46.3	51	60.7	360	74.4	33	71.5	34	60.9	478		
LA03	Yes	32.5	120	49.8	309	63.4	30	68.1	19	47.0	478		
LN01	Yes	15.0	53	36.4	233	55.0	112	56.6	80	41.8	478		
LN02	Yes	40.0	13	60.6	306	67.8	103	67.8	54	62.4	476		
LN03	Yes	46.7	30	58.5	176	50.4	125	62.6	147	56.9	478		
LN04	Yes	38.9	18	68.8	157	86.7	152	89.1	152	79.8	479		
LN05	Yes	43.9	33	61.4	184	74.8	129	78.6	133	68.6	479		
LN06	Yes	33.3	3	59.8	122	76.7	131	74.3	222	71.0	478		
LN07	Yes	29.8	88	59.8	198	75.2	106	77.6	87	61.0	479		
LN08	Yes	53.5	33	79.4	102	93.1	68	96.8	31	82.0	234		
LN09	Yes	71.4	7	84.3	102	85.2	61	89.4	66	85.6	236		
LN11	Yes	57.1	19	62.6	180	69.3	127	69.3	153	66.3	479		
MI01	Yes	35.6	87	50.4	133	62.5	8	88.0	1	45.3	229		
MI02	Yes	52.4	105	64.3	114	66.3	7	88.0	1	59.0	227		
MI03	Yes	23.7	175	24.8	62	55.0	2	55.5	2	24.5	241		
MI04	Yes	33.3	187	32.6	51	55.0	0	89.0	1	33.4	239		

Table B-7. (Cont.)

Task	Resp	Task recency level										Total	
		Never		> 6 months		1-6 months		< 4 weeks		Mean	N	Mean	N
		Mean	%	Mean	%	Mean	%	Mean	%				
NB01	Yes	76.0	10	90.4	110	93.0	77	93.5	40	91.1	237	91.1	237
NB02	Yes	44.5	45	55.6	133	58.5	42	65.8	15	54.6	235	54.6	235
NB03	Yes	73.5	46	77.1	106	77.0	46	86.2	37	77.8	235	77.8	235
NB04	Yes	56.5	82	63.5	118	64.1	24	72.5	12	61.6	236	61.6	236
NB05	Yes	43.4	88	58.0	115	68.7	25	81.3	8	54.5	236	54.5	236
NB06	Yes	64.0	3	70.8	71	75.8	92	81.3	76	73.8	242	73.8	242
NB07	Yes	31.1	18	27.1	159	40.1	50	39.9	14	30.9	241	30.9	241
NB08	Yes	48.6	22	46.9	101	43.3	64	56.9	51	48.2	238	48.2	238
NB09	Yes	60.0	51	60.6	139	55.6	33	66.7	15	60.2	238	60.2	238
NB10	Yes	64.3	145	63.7	68	68.6	19	71.0	8	64.7	240	64.7	240
NB13	Yes	66.8	395	67.7	63	74.3	14	71.8	5	67.2	477	67.2	477
NV01	Yes	67.7	62	74.0	100	82.9	35	70.3	37	73.1	234	73.1	234
NV02	Yes	49.8	177	71.3	186	82.3	54	82.3	54	65.7	471	65.7	471
NV03	Yes	50.0	94	60.3	85	60.3	29	55.4	28	55.6	236	55.6	236
NV04	Yes	66.1	62	88.7	115	97.1	34	86.7	30	83.8	241	83.8	241
NV05	Yes	47.4	106	50.6	87	55.4	24	80.0	22	52.4	239	52.4	239
SL01	Yes	71.9	210	61.2	116	70.4	71	71.6	81	69.0	478	69.0	478
SL02	Yes	34.9	248	41.6	121	53.4	54	55.5	55	41.0	478	41.0	478
SL03	Yes	60.3	218	72.2	130	79.8	75	80.5	56	68.9	479	68.9	479
SL04	Yes	61.6	211	80.3	132	87.4	75	93.6	61	74.9	479	74.9	479
SI01	Yes	61.0	42	60.2	98	63.6	47	63.2	47	61.6	234	61.6	234
SI02	Yes	75.7	37	58.7	92	66.7	54	54.7	53	62.3	236	62.3	236
SI03	Yes	64.3	68	67.4	271	67.7	96	73.3	43	67.6	478	67.6	478
SI04	Yes	74.0	222	72.9	190	72.6	42	77.2	25	73.6	479	73.6	479
SI05	Yes	52.2	41	53.0	100	54.6	48	54.2	45	53.4	234	53.4	234
TL01	Yes	58.8	19	66.6	198	65.2	108	73.8	149	68.2	474	68.2	474
TL03	Yes	52.6	26	57.3	300	60.7	103	59.7	48	58.0	477	58.0	477
TL04	Yes	12.4	21	26.7	218	33.4	100	29.3	127	28.2	466	28.2	466
TL05	Yes	84.6	5	77.7	95	79.5	115	80.2	262	79.6	477	79.6	477
TM01	Yes	58.2	298	62.7	114	57.3	41	74.0	25	60.0	478	60.0	478
TM08	Yes	31.8	353	42.0	84	47.4	19	46.5	19	34.9	475	34.9	475
TM09	Yes	76.5	106	75.7	131	80.0	98	83.2	143	79.0	478	79.0	478
TM14	Yes	41.0	200	51.1	139	60.3	87	64.1	52	50.0	478	50.0	478